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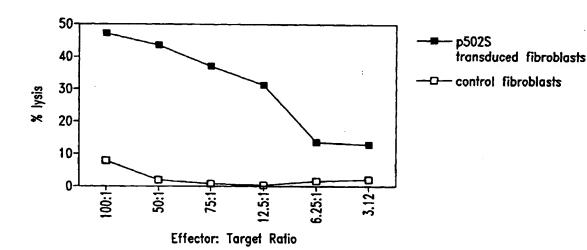
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(54) Title: COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF PROSTATE CANCER



(57) Abstract: Compositions and methods for the therapy and diagnosis of cancer, such as prostate cancer, are disclosed. Compositions may comprise one or more prostate tumor proteins, immunogenic portions thereof, or polynucleotides that encode such portions. Alternatively, a therapeutic composition may comprise an antigen presenting cell that expresses a prostate tumor protein, or a T cell that is specific for cells expressing such a protein. Such compositions may be used, for example, for the prevention and treatment of diseases such as prostate cancer. Diagnostic methods based on detecting a prostate tumor protein, or mRNA encoding such a protein, in a sample are also provided.

# COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF PROSTATE CANCER

#### **TECHNICAL FIELD**

The present invention relates generally to therapy and diagnosis of cancer, such as prostate cancer. The invention is more specifically related to polypeptides comprising at least a portion of a prostate tumor protein, and to polynucleotides encoding such polypeptides. Such polypeptides and polynucleotides may be used in vaccines and pharmaceutical compositions for prevention and treatment of prostate cancer, and for the diagnosis and monitoring of such cancers.

#### **BACKGROUND OF THE INVENTION**

Prostate cancer is the most common form of cancer among males, with an estimated incidence of 30% in men over the age of 50. Overwhelming clinical evidence shows that human prostate cancer has the propensity to metastasize to bone, and the disease appears to progress inevitably from androgen dependent to androgen refractory status, leading to increased patient mortality. This prevalent disease is currently the second leading cause of cancer death among men in the U.S.

In spite of considerable research into therapies for the disease, prostate cancer remains difficult to treat. Commonly, treatment is based on surgery and/or radiation therapy, but these methods are ineffective in a significant percentage of cases. Two previously identified prostate specific proteins - prostate specific antigen (PSA) and prostatic acid phosphatase (PAP) - have limited therapeutic and diagnostic potential. For example, PSA levels do not always correlate well with the presence of prostate cancer, being positive in a percentage of non-prostate cancer cases, including benign prostatic hyperplasia (BPH). Furthermore, PSA measurements correlate with prostate volume, and do not indicate the level of metastasis.

In spite of considerable research into therapies for these and other cancers, prostate cancer remains difficult to diagnose and treat effectively. Accordingly, there is a need in the art for improved methods for detecting and treating

such cancers. The present invention fulfills these needs and further provides other related advantages.

#### SUMMARY OF THE INVENTION

Briefly stated, the present invention provides compositions and methods for the diagnosis and therapy of cancer, such as prostate cancer. In one aspect, the present invention provides polypeptides comprising at least a portion of a prostate Certain portions and other variants are tumor protein, or a variant thereof. immunogenic, such that the ability of the variant to react with antigen-specific antisera is not substantially diminished. Within certain embodiments, the polypeptide comprises at least an immunogenic portion of a prostate tumor protein, or a variant thereof, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of: (a) sequences recited in any one of SEQ ID NOs:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 or 384-472; (b) sequences that hybridize to any of the foregoing sequences under moderately stringent conditions; and (c) complements of any of the sequence of (a) or (b). In certain specific embodiments, such a polypeptide comprises at least a portion, or variant thereof, of a tumor protein that includes an amino acid sequence selected from the group consisting of sequences recited in any one of SEQ ID NO: 112-114, 172, 176, 178, 327, 329, 331, 336, 339, 376-380 and 383.

The present invention further provides polynucleotides that encode a polypeptide as described above, or a portion thereof (such as a portion encoding at least 15 amino acid residues of a prostate tumor protein), expression vectors comprising such polynucleotides and host cells transformed or transfected with such expression vectors.

Within other aspects, the present invention provides pharmaceutical compositions comprising a polypeptide or polynucleotide as described above and a physiologically acceptable carrier.

Within a related aspect of the present invention, vaccines are provided. Such vaccines comprise a polypeptide or polynucleotide as described above and a non-specific immune response enhancer.

The present invention further provides pharmaceutical compositions that comprise: (a) an antibody or antigen-binding fragment thereof that specifically binds to a prostate tumor protein; and (b) a physiologically acceptable carrier.

Within further aspects, the present invention provides pharmaceutical compositions comprising: (a) an antigen presenting cell that expresses a polypeptide as described above and (b) a pharmaceutically acceptable carrier or excipient. Antigen presenting cells include dendritic cells, macrophages, monocytes, fibroblasts and B cells.

Within related aspects, vaccines are provided that comprise: (a) an antigen presenting cell that expresses a polypeptide as described above and (b) a non-specific immune response enhancer.

The present invention further provides, in other aspects, fusion proteins that comprise at least one polypeptide as described above, as well as polynucleotides encoding such fusion proteins.

Within related aspects, pharmaceutical compositions comprising a fusion protein, or a polynucleotide encoding a fusion protein, in combination with a physiologically acceptable carrier are provided.

Vaccines are further provided, within other aspects, that comprise a fusion protein, or a polynucleotide encoding a fusion protein, in combination with a non-specific immune response enhancer.

Within further aspects, the present invention provides methods for inhibiting the development of a cancer in a patient, comprising administering to a patient a pharmaceutical composition or vaccine as recited above.

The present invention further provides, within other aspects, methods for removing tumor cells from a biological sample, comprising contacting a biological sample with T cells that specifically react with a prostate tumor protein, wherein the step of contacting is performed under conditions and for a time sufficient to permit the removal of cells expressing the protein from the sample.

Within related aspects, methods are provided for inhibiting the development of a cancer in a patient, comprising administering to a patient a biological sample treated as described above.

Methods are further provided, within other aspects, for stimulating and/or expanding T cells specific for a prostate tumor protein, comprising contacting T cells with one or more of: (i) a polypeptide as described above; (ii) a polypucleotide encoding such a polypeptide; and/or (iii) an antigen presenting cell that expresses such a polypeptide; under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells. Isolated T cell populations comprising T cells prepared as described above are also provided.

Within further aspects, the present invention provides methods for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a T cell population as described above.

The present invention further provides methods for inhibiting the development of a cancer in a patient, comprising the steps of: (a) incubating CD4<sup>+</sup> and/or CD8<sup>+</sup> T cells isolated from a patient with one or more of: (i) a polypeptide comprising at least an immunogenic portion of a prostate tumor protein; (ii) a polynucleotide encoding such a polypeptide; and (iii) an antigen-presenting cell that expressed such a polypeptide; and (b) administering to the patient an effective amount of the proliferated T cells, and thereby inhibiting the development of a cancer in the patient. Proliferated cells may, but need not, be cloned prior to administration to the patient.

Within further aspects, the present invention provides methods for determining the presence or absence of a cancer in a patient, comprising: (a) contacting a biological sample obtained from a patient with a binding agent that binds to a polypeptide as recited above; (b) detecting in the sample an amount of polypeptide that binds to the binding agent; and (c) comparing the amount of polypeptide with a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient. Within preferred embodiments, the binding agent is an antibody, more preferably a monoclonal antibody. The cancer may be prostate cancer.

The present invention also provides, within other aspects, methods for monitoring the progression of a cancer in a patient. Such methods comprise the steps of: (a) contacting a biological sample obtained from a patient at a first point in time with a binding agent that binds to a polypeptide as recited above; (b) detecting in the sample an amount of polypeptide that binds to the binding agent; (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and (d) comparing the amount of polypeptide detected in step (c) with the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

The present invention further provides, within other aspects, methods for determining the presence or absence of a cancer in a patient, comprising the steps of: (a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a prostate tumor protein; (b) detecting in the sample a level of a polynucleotide, preferably mRNA, that hybridizes to the oligonucleotide; and (c) comparing the level of polynucleotide that hybridizes to the oligonucleotide with a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient. Within certain embodiments, the amount of mRNA is detected via polymerase chain reaction using, for example, at least one oligonucleotide primer that hybridizes to a polynucleotide encoding a polypeptide as recited above, or a complement of such a polynucleotide. Within other embodiments, the amount of mRNA is detected using a hybridization technique, employing an oligonucleotide probe that hybridizes to a polynucleotide that encodes a polypeptide as recited above, or a complement of such a polynucleotide.

In related aspects, methods are provided for monitoring the progression of a cancer in a patient, comprising the steps of: (a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a prostate tumor protein; (b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and (d) comparing the amount of polynucleotide detected in step (c) with the amount

detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

Within further aspects, the present invention provides antibodies, such as monoclonal antibodies, that bind to a polypeptide as described above, as well as diagnostic kits comprising such antibodies. Diagnostic kits comprising one or more oligonucleotide probes or primers as described above are also provided.

These and other aspects of the present invention will become apparent upon reference to the following detailed description and attached drawings. All references disclosed herein are hereby incorporated by reference in their entirety as if each was incorporated individually.

## BRIEF DESCRIPTION OF THE DRAWINGS AND SEQUENCE IDENTIFIERS

Figure 1 illustrates the ability of T cells to kill fibroblasts expressing the representative prostate tumor polypeptide P502S, as compared to control fibroblasts. The percentage lysis is shown as a series of effector:target ratios, as indicated.

Figures 2A and 2B illustrate the ability of T cells to recognize cells expressing the representative prostate tumor polypeptide P502S. In each case, the number of γ-interferon spots is shown for different numbers of responders. In Figure 2A, data is presented for fibroblasts pulsed with the P2S-12 peptide, as compared to fibroblasts pulsed with a control E75 peptide. In Figure 2B, data is presented for fibroblasts expressing P502S, as compared to fibroblasts expressing HER-2/neu.

Figure 3 represents a peptide competition binding assay showing that the P1S#10 peptide, derived from P501S, binds HLA-A2. Peptide P1S#10 inhibits HLA-A2 restricted presentation of fluM58 peptide to CTL clone D150M58 in TNF release bioassay. D150M58 CTL is specific for the HLA-A2 binding influenza matrix peptide fluM58.

Figure 4 illustrates the ability of T cell lines generated from P1S#10 immunized mice to specifically lyse P1S#10-pulsed Jurkat A2Kb targets and P501S-transduced Jurkat A2Kb targets, as compared to EGFP-transduced Jurkat A2Kb. The percent lysis is shown as a series of effector to target ratios, as indicated.

Figure 5 illustrates the ability of a T cell clone to recognize and specifically lyse Jurkat A2Kb cells expressing the representative prostate tumor polypeptide P501S, thereby demonstrating that the P1S#10 peptide may be a naturally processed epitope of the P501S polypeptide.

Figures 6A and 6B are graphs illustrating the specificity of a CD8<sup>+</sup> cell line (3A-1) for a representative prostate tumor antigen (P501S). Figure 6A shows the results of a <sup>51</sup>Cr release assay. The percent specific lysis is shown as a series of effector:target ratios, as indicated. Figure 6B shows the production of interferongamma by 3A-1 cells stimulated with autologous B-LCL transduced with P501S, at varying effector:target rations as indicated.

SEO ID NO: 1 is the determined cDNA sequence for F1-13

SEQ ID NO: 2 is the determined 3' cDNA sequence for F1-12

SEQ ID NO: 3 is the determined 5' cDNA sequence for F1-12

SEQ ID NO: 4 is the determined 3' cDNA sequence for F1-16

SEQ ID NO: 5 is the determined 3' cDNA sequence for H1-1

SEQ ID NO: 6 is the determined 3' cDNA sequence for H1-9

SEQ ID NO: 7 is the determined 3' cDNA sequence for H1-4

SEQ ID NO: 8 is the determined 3' cDNA sequence for J1-17

SEQ ID NO: 9 is the determined 5' cDNA sequence for J1-17

SEQ ID NO: 10 is the determined 3' cDNA sequence for L1-12

SEQ ID NO: 11 is the determined 5' cDNA sequence for L1-12

SEQ ID NO: 12 is the determined 3' cDNA sequence for N1-1862

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SEQ ID NO: 14 is the determined 3' cDNA sequence for J1-13

SEQ ID NO: 15 is the determined 5' cDNA sequence for J1-13

SEO ID NO: 16 is the determined 3' cDNA sequence for J1-19

SEQ ID NO: 17 is the determined 5' cDNA sequence for J1-19

SEO ID NO: 18 is the determined 3' cDNA sequence for J1-25

SEQ ID NO: 19 is the determined 5' cDNA sequence for J1-25

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  - SEQ ID NO: 109 is the determined full length cDNA sequence for J1-17

SEQ ID NO: 107 is the determined full length cDNA sequence for F1-12 (also referred

to as P504S)

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SEQ ID NO: 199 is the determined extended cDNA sequence for 1H-4772 SEQ ID NO: 200 is the determined extended cDNA sequence for 1D-4309 SEO ID NO: 201 is the determined extended cDNA sequence for 1D.1-4278 SEQ ID NO: 202 is the determined extended cDNA sequence for 1D-4288 SEQ ID NO: 203 is the determined extended cDNA sequence for 1D-4283 SEQ ID NO: 204 is the determined extended cDNA sequence for 1D-4304 SEQ ID NO: 205 is the determined extended cDNA sequence for 1D-4296 SEQ ID NO: 206 is the determined extended cDNA sequence for 1D-4280 SEQ ID NO: 207 is the determined cDNA sequence for 10-d8fwd SEQ ID NO: 208 is the determined cDNA sequence for 10-H10con SEQ ID NO: 209 is the determined cDNA sequence for 11-C8rev SEQ ID NO: 210 is the determined cDNA sequence for 7.g6fwd SEQ ID NO: 211 is the determined cDNA sequence for 7.g6rev SEQ ID NO: 212 is the determined cDNA sequence for 8-b5fwd SEQ ID NO: 213 is the determined cDNA sequence for 8-b5rev SEQ ID NO: 214 is the determined cDNA sequence for 8-b6fwd SEQ ID NO: 215 is the determined cDNA sequence for 8-b6 rev SEQ ID NO: 216 is the determined cDNA sequence for 8-d4fwd SEQ ID NO: 217 is the determined cDNA sequence for 8-d9rev SEQ ID NO: 218 is the determined cDNA sequence for 8-g3fwd SEQ ID NO: 219 is the determined cDNA sequence for 8-g3rev SEQ ID NO: 220 is the determined cDNA sequence for 8-h11rev SEQ ID NO: 221 is the determined cDNA sequence for g-f12fwd SEQ ID NO: 222 is the determined cDNA sequence for g-f3rev SEQ ID NO: 223 is the determined cDNA sequence for P509S SEQ ID NO: 224 is the determined cDNA sequence for P510S SEQ ID NO: 225 is the determined cDNA sequence for P703DE5 SEQ ID NO: 226 is the determined cDNA sequence for 9-A11 SEQ ID NO: 227 is the determined cDNA sequence for 8-C6 SEQ ID NO: 228 is the determined cDNA sequence for 8-H7

SEQ ID NO: 229 is the determined cDNA sequence for JPTPN13 SEQ ID NO: 230 is the determined cDNA sequence for JPTPN14 SEQ ID NO: 231 is the determined cDNA sequence for JPTPN23 SEQ ID NO: 232 is the determined cDNA sequence for JPTPN24 SEQ ID NO: 233 is the determined cDNA sequence for JPTPN25 SEQ ID NO: 234 is the determined cDNA sequence for JPTPN30 SEQ ID NO: 235 is the determined cDNA sequence for JPTPN34 SEQ ID NO: 236 is the determined cDNA sequence for PTPN35 SEQ ID NO: 237 is the determined cDNA sequence for JPTPN36 SEQ ID NO: 238 is the determined cDNA sequence for JPTPN38 SEQ ID NO: 239 is the determined cDNA sequence for JPTPN39 SEQ ID NO: 240 is the determined cDNA sequence for JPTPN40 SEQ ID NO: 241 is the determined cDNA sequence for JPTPN41 SEQ ID NO: 242 is the determined cDNA sequence for JPTPN42 SEQ ID NO: 243 is the determined cDNA sequence for JPTPN45 SEQ ID NO: 244 is the determined cDNA sequence for JPTPN46 SEQ ID NO: 245 is the determined cDNA sequence for JPTPN51 SEQ ID NO: 246 is the determined cDNA sequence for JPTPN56 SEQ ID NO: 247 is the determined cDNA sequence for PTPN64 SEQ ID NO: 248 is the determined cDNA sequence for JPTPN65 SEO ID NO: 249 is the determined cDNA sequence for JPTPN67 SEQ ID NO: 250 is the determined cDNA sequence for JPTPN76 SEQ ID NO: 251 is the determined cDNA sequence for JPTPN84 SEQ ID NO: 252 is the determined cDNA sequence for JPTPN85 SEQ ID NO: 253 is the determined cDNA sequence for JPTPN86 SEQ ID NO: 254 is the determined cDNA sequence for JPTPN87 SEQ ID NO: 255 is the determined cDNA sequence for JPTPN88 SEQ ID NO: 256 is the determined cDNA sequence for JP1F1 SEQ ID NO: 257 is the determined cDNA sequence for JP1F2 SEQ ID NO: 258 is the determined cDNA sequence for JP1C2

SEQ ID NO: 259 is the determined cDNA sequence for JP1B1 SEQ ID NO: 260 is the determined cDNA sequence for JP1B2 SEQ ID NO: 261 is the determined cDNA sequence for JP1D3 SEQ ID NO: 262 is the determined cDNA sequence for JP1A4 SEQ ID NO: 263 is the determined cDNA sequence for JP1F5 SEQ ID NO: 264 is the determined cDNA sequence for JP1E6 SEQ ID NO: 265 is the determined cDNA sequence for JP1D6 SEQ ID NO: 266 is the determined cDNA sequence for JP1B5 SEQ ID NO: 267 is the determined cDNA sequence for JP1A6 SEQ ID NO: 268 is the determined cDNA sequence for JP1E8 SEQ ID NO: 269 is the determined cDNA sequence for JP1D7 SEQ ID NO: 270 is the determined cDNA sequence for JP1D9 SEQ ID NO: 271 is the determined cDNA sequence for JP1C10 SEQ ID NO: 272 is the determined cDNA sequence for JP1A9 SEQ ID NO: 273 is the determined cDNA sequence for JP1F12 SEQ ID NO: 274 is the determined cDNA sequence for JP1E12 SEQ ID NO: 275 is the determined cDNA sequence for JP1D11 SEQ ID NO: 276 is the determined cDNA sequence for JP1C11 SEQ ID NO: 277 is the determined cDNA sequence for JP1C12 SEQ ID NO: 278 is the determined cDNA sequence for JP1B12 SEQ ID NO: 279 is the determined cDNA sequence for JP1A12 SEQ ID NO: 280 is the determined cDNA sequence for JP8G2 SEQ ID NO: 281 is the determined cDNA sequence for JP8H1 SEQ ID NO: 282 is the determined cDNA sequence for JP8H2 SEQ ID NO: 283 is the determined cDNA sequence for JP8A3 SEQ ID NO: 284 is the determined cDNA sequence for JP8A4 SEQ ID NO: 285 is the determined cDNA sequence for JP8C3 SEQ ID NO: 286 is the determined cDNA sequence for JP8G4 SEQ ID NO: 287 is the determined cDNA sequence for JP8B6 SEQ ID NO: 288 is the determined cDNA sequence for JP8D6

SEQ ID NO: 289 is the determined cDNA sequence for JP8F5 SEQ ID NO: 290 is the determined cDNA sequence for JP8A8 SEQ ID NO: 291 is the determined cDNA sequence for JP8C7 SEQ'ID NO: 292 is the determined cDNA sequence for JP8D7 SEQ ID NO: 293 is the determined cDNA sequence for P8D8 SEQ ID NO: 294 is the determined cDNA sequence for JP8E7 SEQ ID NO: 295 is the determined cDNA sequence for JP8F8 SEQ ID NO: 296 is the determined cDNA sequence for JP8G8 SEQ ID NO: 297 is the determined cDNA sequence for JP8B10 SEQ ID NO: 298 is the determined cDNA sequence for JP8C10 SEQ ID NO: 299 is the determined cDNA sequence for JP8E9 SEQ ID NO: 300 is the determined cDNA sequence for JP8E10 SEQ ID NO: 301 is the determined cDNA sequence for JP8F9 SEQ ID NO: 302 is the determined cDNA sequence for JP8H9 SEQ ID NO: 303 is the determined cDNA sequence for JP8C12 SEQ ID NO: 304 is the determined cDNA sequence for JP8E11 SEQ ID NO: 305 is the determined cDNA sequence for JP8E12 SEQ ID NO: 306 is the amino acid sequence for the peptide PS2#12 SEQ ID NO: 307 is the determined cDNA sequence for P711P SEQ ID NO: 308 is the determined cDNA sequence for P712P SEQ ID NO: 309 is the determined cDNA sequence for CLONE23 SEQ ID NO: 310 is the determined cDNA sequence for P774P SEQ ID NO: 311 is the determined cDNA sequence for P775P SEQ ID NO: 312 is the determined cDNA sequence for P715P SEQ ID NO: 313 is the determined cDNA sequence for P710P SEQ ID NO: 314 is the determined cDNA sequence for P767P SEQ ID NO: 315 is the determined cDNA sequence for P768P SEQ ID NO: 316-325 are the determined cDNA sequences of previously isolated genes SEQ ID NO: 326 is the determined cDNA sequence for P703PDE5

SEQ ID NO: 327 is the predicted amino acid sequence for P703PDE5

SEQ ID NO: 328 is the determined cDNA sequence for P703P6.26

SEQ ID NO: 329 is the predicted amino acid sequence for P703P6.26

SEQ ID NO: 330 is the determined cDNA sequence for P703PX-23

SEQ ID NO: 331 is the predicted amino acid sequence for P703PX-23

SEQ ID NO: 332 is the determined full length cDNA sequence for P509S

SEQ ID NO: 333 is the determined extended cDNA sequence for P707P (also referred

to as 11-C9)

SEQ ID NO: 334 is the determined cDNA sequence for P714P

SEQ ID NO: 335 is the determined cDNA sequence for P705P (also referred to as 9-

F3)

SEQ ID NO: 336 is the predicted amino acid sequence for P705P

SEQ ID NO: 337 is the amino acid sequence of the peptide P1S#10

SEQ ID NO: 338 is the amino acid sequence of the peptide p5

SEQ ID NO: 339 is the predicted amino acid sequence of P509S

SEQ ID NO: 340 is the determined cDNA sequence for P778P

SEQ ID NO: 341 is the determined cDNA sequence for P786P

SEQ ID NO: 342 is the determined cDNA sequence for P789P

SEQ ID NO: 343 is the determined cDNA sequence for a clone showing homology to

Homo sapiens MM46 mRNA

SEQ ID NO: 344 is the determined cDNA sequence for a clone showing homology to

Homo sapiens TNF-alpha stimulated ABC protein (ABC50) mRNA

SEQ ID NO: 345 is the determined cDNA sequence for a clone showing homology to

Homo sapiens mRNA for E-cadherin

SEQ ID NO: 346 is the determined cDNA sequence for a clone showing homology to

Human nuclear-encoded mitochondrial serine hydroxymethyltransferase (SHMT)

SEQ ID NO: 347 is the determined cDNA sequence for a clone showing homology to

Homo sapiens natural resistance-associated macrophage protein2 (NRAMP2)

SEQ ID NO: 348 is the determined cDNA sequence for a clone showing homology to

Homo sapiens phosphoglucomutase-related protein (PGMRP)

SEQ ID NO: 349 is the determined cDNA sequence for a clone showing homology to

Human mRNA for proteosome subunit p40

SEQ ID NO: 350 is the determined cDNA sequence for P777P

SEQ ID NO: 351 is the determined cDNA sequence for P779P

SEQ ID NO: 352 is the determined cDNA sequence for P790P

SEQ ID NO: 353 is the determined cDNA sequence for P784P

SEQ ID NO: 354 is the determined cDNA sequence for P776P

SEQ ID NO: 355 is the determined cDNA sequence for P780P

SEQ ID NO: 356 is the determined cDNA sequence for P544S

SEQ ID NO: 357 is the determined cDNA sequence for P745S

SEQ ID NO: 358 is the determined cDNA sequence for P782P

SEQ ID NO: 359 is the determined cDNA sequence for P783P

SEQ ID NO: 360 is the determined cDNA sequence for unknown 17984

SEQ ID NO: 361 is the determined cDNA sequence for P787P

SEQ ID NO: 362 is the determined cDNA sequence for P788P

SEQ ID NO: 363 is the determined cDNA sequence for unknown 17994

SEQ ID NO: 364 is the determined cDNA sequence for P781P

SEQ ID NO: 365 is the determined cDNA sequence for P785P

SEQ ID NO: 366-375 are the determined cDNA sequences for splice variants of

B305D.

SEQ ID NO: 376 is the predicted amino acid sequence encoded by the sequence of SEQ

ID NO: 366.

SEQ ID NO: 377 is the predicted amino acid sequence encoded by the sequence of SEQ

ID NO: 372.

SEQ ID NO: 378 is the predicted amino acid sequence encoded by the sequence of SEQ

ID NO: 373.

SEQ ID NO: 379 is the predicted amino acid sequence encoded by the sequence of SEQ

ID NO: 374.

SEQ ID NO: 380 is the predicted amino acid sequence encoded by the sequence of SEQ

ID NO: 375.

SEQ ID NO: 381 is the determined cDNA sequence for B716P.

SEQ ID NO: 382 is the determined full-length cDNA sequence for P711P.

SEQ ID NO: 383 is the predicted amino acid sequence for P711P.

SEQ ID NO: 384 is the cDNA sequence for P1000C.

SEQ ID NO: 385 is the cDNA sequence for CGI-82.

SEO ID NO:386 is the cDNA sequence for 23320.

SEQ ID NO:387 is the cDNA sequence for CGI-69.

SEQ ID NO:388 is the cDNA sequence for L-iditol-2-dehydrogenase.

SEO ID NO:389 is the cDNA sequence for 23379.

SEQ ID NO:390 is the cDNA sequence for 23381.

SEQ ID NO:391 is the cDNA sequence for KIAA0122.

SEO ID NO:392 is the cDNA sequence for 23399.

SEQ ID NO:393 is the cDNA sequence for a previously identified gene.

SEQ ID NO:394 is the cDNA sequence for HCLBP.

SEQ ID NO:395 is the cDNA sequence for transglutaminase.

SEQ ID NO:396 is the cDNA sequence for a previously identified gene.

SEQ ID NO:397 is the cDNA sequence for PAP.

SEQ ID NO:398 is the cDNA sequence for Ets transcription factor PDEF.

SEQ ID NO:399 is the cDNA sequence for hTGR.

SEQ ID NO:400 is the cDNA sequence for KIAA0295.

SEQ ID NO:401 is the cDNA sequence for 22545.

SEQ ID NO:402 is the cDNA sequence for 22547.

SEQ ID NO:403 is the cDNA sequence for 22548.

SEQ ID NO:404 is the cDNA sequence for 22550.

SEO ID NO:405 is the cDNA sequence for 22551.

SEQ ID NO:406 is the cDNA sequence for 22552.

SEQ ID NO:407 is the cDNA sequence for 22553.

SEQ ID NO:408 is the cDNA sequence for 22558.

SEQ ID NO:409 is the cDNA sequence for 22562.

SEQ ID NO:410 is the cDNA sequence for 22565.

SEQ ID NO:411 is the cDNA sequence for 22567. SEQ ID NO:412 is the cDNA sequence for 22568. SEQ ID NO:413 is the cDNA sequence for 22570. SEQ ID NO:414 is the cDNA sequence for 22571. SEQ ID NO:415 is the cDNA sequence for 22572. SEQ ID NO:416 is the cDNA sequence for 22573. SEQ ID NO:417 is the cDNA sequence for 22573. SEQ ID NO:418 is the cDNA sequence for 22575. SEQ ID NO:419 is the cDNA sequence for 22580. SEQ ID NO:420 is the cDNA sequence for 22581. SEQ ID NO:421 is the cDNA sequence for 22582. SEQ ID NO:422 is the cDNA sequence for 22583. SEQ ID NO:423 is the cDNA sequence for 22584. SEQ ID NO:424 is the cDNA sequence for 22585. SEQ ID NO:425 is the cDNA sequence for 22586. SEQ ID NO:426 is the cDNA sequence for 22587. SEQ ID NO:427 is the cDNA sequence for 22588. SEQ ID NO:428 is the cDNA sequence for 22589. SEQ ID NO:429 is the cDNA sequence for 22590. SEQ ID NO:430 is the cDNA sequence for 22591. SEQ ID NO:431 is the cDNA sequence for 22592. SEQ ID NO:432 is the cDNA sequence for 22593. SEQ ID NO:433 is the cDNA sequence for 22594. SEQ ID NO:434 is the cDNA sequence for 22595. SEQ ID NO:435 is the cDNA sequence for 22596. SEQ ID NO:436 is the cDNA sequence for 22847. SEQ ID NO:437 is the cDNA sequence for 22848. SEQ ID NO:438 is the cDNA sequence for 22849. SEQ ID NO:439 is the cDNA sequence for 22851. SEQ ID NO:440 is the cDNA sequence for 22852.

- SEQ ID NO:441 is the cDNA sequence for 22853.
- SEQ ID NO:442 is the cDNA sequence for 22854.
- SEQ ID NO:443 is the cDNA sequence for 22855.
- SEQ ID NO:444 is the cDNA sequence for 22856.
- SEQ ID NO:445 is the cDNA sequence for 22857.
- SEQ ID NO:446 is the cDNA sequence for 23601.
- SEQ ID NO:447 is the cDNA sequence for 23602.
- SEQ ID NO:448 is the cDNA sequence for 23605.
- SEQ ID NO:449 is the cDNA sequence for 23606.
- SEQ ID NO:450 is the cDNA sequence for 23612.
- SEQ ID NO:451 is the cDNA sequence for 23614.
- SEQ ID NO:452 is the cDNA sequence for 23618.
- SEQ ID NO:453 is the cDNA sequence for 23622.
- SEQ ID NO:454 is the cDNA sequence for folate hydrolase.
- SEQ ID NO:455 is the cDNA sequence for LIM protein.
- SEQ ID NO:456 is the cDNA sequence for a known gene.
- SEQ ID NO:457 is the cDNA sequence for a known gene.
- SEQ ID NO:458 is the cDNA sequence for a previously identified gene.
- SEQ ID NO:459 is the cDNA sequence for 23045.
- SEQ ID NO:460 is the cDNA sequence for 23032.
- SEQ ID NO:461 is the cDNA sequence for 23054.
- SEQ ID NOs:462-467 are cDNA sequences for known genes.
- SEQ ID NOs:468-471 are cDNA sequences for P710P.
- SEQ ID NO:472 is a cDNA sequence for P1001C.
- SEQ ID NO:473 is the amino acid sequence for PSMA.
- SEQ ID NO:474 is the amino acid sequence for PAP.
- SEQ ID NO:475 is the amino acid sequence for PSA.
- SEQ ID NO:476 is the amino acid sequence for a fusion protein containing PSA, P703P and P501S.

### DETAILED DESCRIPTION OF THE INVENTION

As noted above, the present invention is generally directed to compositions and methods for the therapy and diagnosis of cancer, such as prostate cancer. The compositions described herein may include prostate tumor polypeptides, polynucleotides encoding such polypeptides, binding agents such as antibodies, antigen presenting cells (APCs) and/or immune system cells (e.g., T cells). Polypeptides of the present invention generally comprise at least a portion (such as an immunogenic portion) of a prostate tumor protein or a variant thereof. A "prostate tumor protein" is a protein that is expressed in prostate tumor cells at a level that is at least two fold, and preferably at least five fold, greater than the level of expression in a normal tissue, as determined using a representative assay provided herein. Certain prostate tumor proteins are tumor proteins that react detectably (within an immunoassay, such as an ELISA or Western blot) with antisera of a patient afflicted with prostate cancer. Polynucleotides of the subject invention generally comprise a DNA or RNA sequence that encodes all or a portion of such a polypeptide, or that is complementary to such a sequence. Antibodies are generally immune system proteins, or antigen-binding fragments thereof, that are capable of binding to a polypeptide as described above. Antigen presenting cells include dendritic cells, macrophages, monocytes, fibroblasts and B-cells that express a polypeptide as described above. T cells that may be employed within such compositions are generally T cells that are specific for a polypeptide as described above.

The present invention is based on the discovery of human prostate tumor proteins. Sequences of polynucleotides encoding certain tumor proteins, or portions thereof, are provided in SEQ ID NOs:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 or 384-472. Sequences of polypeptides comprising at least a portion of a tumor protein are provided in SEQ ID NOs:112-114, 172, 176, 178, 327, 329, 331, 336, 339, 376-380 and 383.

#### PROSTATE TUMOR PROTEIN POLYNUCLEOTIDES

Any polynucleotide that encodes a prostate tumor protein or a portion or other variant thereof as described herein is encompassed by the present invention. Preferred polynucleotides comprise at least 15 consecutive nucleotides, preferably at least 30 consecutive nucleotides and more preferably at least 45 consecutive nucleotides, that encode a portion of a prostate tumor protein. More preferably, a polynucleotide encodes an immunogenic portion of a prostate tumor protein. Polynucleotides complementary to any such sequences are also encompassed by the present invention. Polynucleotides may be single-stranded (coding or antisense) or double-stranded, and may be DNA (genomic, cDNA or synthetic) or RNA molecules. RNA molecules include HnRNA molecules, which contain introns and correspond to a DNA molecule in a one-to-one manner, and mRNA molecules, which do not contain introns. Additional coding or non-coding sequences may, but need not, be present within a polynucleotide of the present invention, and a polynucleotide may, but need not, be linked to other molecules and/or support materials.

Polynucleotides may comprise a native sequence (i.e., an endogenous sequence that encodes a prostate tumor protein or a portion thereof) or may comprise a variant of such a sequence. Polynucleotide variants may contain one or more substitutions, additions, deletions and/or insertions such that the immunogenicity of the encoded polypeptide is not diminished, relative to a native tumor protein. The effect on the immunogenicity of the encoded polypeptide may generally be assessed as described herein. Variants preferably exhibit at least about 70% identity, more preferably at least about 80% identity and most preferably at least about 90% identity to a polynucleotide sequence that encodes a native prostate tumor protein or a portion thereof.

Two polynucleotide or polypeptide sequences are said to be "identical" if the sequence of nucleotides or amino acids in the two sequences is the same when aligned for maximum correspondence as described below. Comparisons between two sequences are typically performed by comparing the sequences over a comparison window to identify and compare local regions of sequence similarity. A "comparison window" as used herein, refers to a segment of at least about 20 contiguous positions,

usually 30 to about 75, 40 to about 50, in which a sequence may be compared to a reference sequence of the same number of contiguous positions after the two sequences are optimally aligned.

Optimal alignment of sequences for comparison may be conducted using the Megalign program in the Lasergene suite of bioinformatics software (DNASTAR, Inc., Madison, WI), using default parameters. This program embodies several alignment schemes described in the following references: Dayhoff, M.O. (1978) A model of evolutionary change in proteins – Matrices for detecting distant relationships. In Dayhoff, M.O. (ed.) Atlas of Protein Sequence and Structure, National Biomedical Research Foundation, Washington DC Vol. 5, Suppl. 3, pp. 345-358; Hein J. (1990) Unified Approach to Alignment and Phylogenes pp. 626-645 Methods in Enzymology vol. 183, Academic Press, Inc., San Diego, CA; Higgins, D.G. and Sharp, P.M. (1989) CABIOS 5:151-153; Myers, E.W. and Muller W. (1988) CABIOS 4:11-17; Robinson, E.D. (1971) Comb. Theor 11:105; Santou, N. Nes, M. (1987) Mol. Biol. Evol. 4:406-425; Sneath, P.H.A. and Sokal, R.R. (1973) Numerical Taxonomy – the Principles and Practice of Numerical Taxonomy, Freeman Press, San Francisco, CA; Wilbur, W.J. and Lipman, D.J. (1983) Proc. Natl. Acad., Sci. USA 80:726-730.

Preferably, the "percentage of sequence identity" is determined by comparing two optimally aligned sequences over a window of comparison of at least 20 positions, wherein the portion of the polynucleotide or polypeptide sequence in the comparison window may comprise additions or deletions (*i.e.*, gaps) of 20 percent or less, usually 5 to 15 percent, or 10 to 12 percent, as compared to the reference sequences (which does not comprise additions or deletions) for optimal alignment of the two sequences. The percentage is calculated by determining the number of positions at which the identical nucleic acid bases or amino acid residue occurs in both sequences to yield the number of matched positions, dividing the number of matched positions by the total number of positions in the reference sequence (*i.e.*, the window size) and multiplying the results by 100 to yield the percentage of sequence identity.

Variants may also, or alternatively, be substantially homologous to a native gene, or a portion or complement thereof. Such polynucleotide variants are

capable of hybridizing under moderately stringent conditions to a naturally occurring DNA sequence encoding a native prostate tumor protein (or a complementary sequence). Suitable moderately stringent conditions include prewashing in a solution of 5 X SSC, 0.5% SDS, 1.0 mM EDTA (pH 8.0); hybridizing at 50°C-65°C, 5 X SSC, overnight; followed by washing twice at 65°C for 20 minutes with each of 2X, 0.5X and 0.2X SSC containing 0.1% SDS.

It will be appreciated by those of ordinary skill in the art that, as a result of the degeneracy of the genetic code, there are many nucleotide sequences that encode a polypeptide as described herein. Some of these polynucleotides bear minimal homology to the nucleotide sequence of any native gene. Nonetheless, polynucleotides that vary due to differences in codon usage are specifically contemplated by the present invention. Further, alleles of the genes comprising the polynucleotide sequences provided herein are within the scope of the present invention. Alleles are endogenous genes that are altered as a result of one or more mutations, such as deletions, additions and/or substitutions of nucleotides. The resulting mRNA and protein may, but need not, have an altered structure or function. Alleles may be identified using standard techniques (such as hybridization, amplification and/or database sequence comparison).

Polynucleotides may be prepared using any of a variety of techniques. For example, a polynucleotide may be identified, as described in more detail below, by screening a microarray of cDNAs for tumor-associated expression (*i.e.*, expression that is at least five fold greater in a prostate tumor than in normal tissue, as determined using a representative assay provided herein). Such screens may be performed using a Synteni microarray (Palo Alto, CA) according to the manufacturer's instructions (and essentially as described by Schena et al., *Proc. Natl. Acad. Sci. USA 93*:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA 94*:2150-2155, 1997). Alternatively, polypeptides may be amplified from cDNA prepared from cells expressing the proteins described herein, such as prostate tumor cells. Such polynucleotides may be amplified via polymerase chain reaction (PCR). For this approach, sequence-specific primers may be designed based on the sequences provided herein, and may be purchased or synthesized.

An amplified portion may be used to isolate a full length gene from a suitable library (e.g., a prostate tumor cDNA library) using well known techniques. Within such techniques, a library (cDNA or genomic) is screened using one or more polynucleotide probes or primers suitable for amplification. Preferably, a library is size-selected to include larger molecules. Random primed libraries may also be preferred for identifying 5' and upstream regions of genes. Genomic libraries are preferred for obtaining introns and extending 5' sequences.

For hybridization techniques, a partial sequence may be labeled (e.g., by nick-translation or end-labeling with <sup>32</sup>P) using well known techniques. A bacterial or bacteriophage library is then screened by hybridizing filters containing denatured bacterial colonies (or lawns containing phage plaques) with the labeled probe (see Sambrook et al., Molecular Cloning: A Laboratory Manual, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY, 1989). Hybridizing colonies or plaques are selected and expanded, and the DNA is isolated for further analysis. cDNA clones may be analyzed to determine the amount of additional sequence by, for example, PCR using a primer from the partial sequence and a primer from the vector. Restriction maps and partial sequences may be generated to identify one or more overlapping clones. The complete sequence may then be determined using standard techniques, which may involve generating a series of deletion clones. The resulting overlapping sequences are then assembled into a single contiguous sequence. A full length cDNA molecule can be generated by ligating suitable fragments, using well known techniques.

Alternatively, there are numerous amplification techniques for obtaining a full length coding sequence from a partial cDNA sequence. Within such techniques, amplification is generally performed via PCR. Any of a variety of commercially available kits may be used to perform the amplification step. Primers may be designed using, for example, software well known in the art. Primers are preferably 22-30 nucleotides in length, have a GC content of at least 50% and anneal to the target sequence at temperatures of about 68°C to 72°C. The amplified region may be sequenced as described above, and overlapping sequences assembled into a contiguous sequence.

One such amplification technique is inverse PCR (see Triglia et al., Nucl. Acids Res. 16:8186, 1988), which uses restriction enzymes to generate a fragment in the known region of the gene. The fragment is then circularized by intramolecular ligation and used as a template for PCR with divergent primers derived from the known region. Within an alternative approach, sequences adjacent to a partial sequence may be retrieved by amplification with a primer to a linker sequence and a primer specific to a known region. The amplified sequences are typically subjected to a second round of amplification with the same linker primer and a second primer specific to the known A variation on this procedure, which employs two primers that initiate extension in opposite directions from the known sequence, is described in WO 96/38591. Another such technique is known as "rapid amplification of cDNA ends" or RACE. This technique involves the use of an internal primer and an external primer, which hybridizes to a polyA region or vector sequence, to identify sequences that are 5' and 3' of a known sequence. Additional techniques include capture PCR (Lagerstrom et al., PCR Methods Applic. 1:111-19, 1991) and walking PCR (Parker et al., Nucl. Acids. Other methods employing amplification may also be Res. 19:3055-60, 1991). employed to obtain a full length cDNA sequence.

In certain instances, it is possible to obtain a full length cDNA sequence by analysis of sequences provided in an expressed sequence tag (EST) database, such as that available from GenBank. Searches for overlapping ESTs may generally be performed using well known programs (e.g., NCBI BLAST searches), and such ESTs may be used to generate a contiguous full length sequence.

Certain nucleic acid sequences of cDNA molecules encoding at least a portion of a prostate tumor protein are provided in SEQ ID NOs:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 or 384-472. Isolation of these polynucleotides is described below. Each of these prostate tumor proteins was overexpressed in prostate tumor tissue.

Polynucleotide variants may generally be prepared by any method known in the art, including chemical synthesis by, for example, solid phase phosphoramidite chemical synthesis. Modifications in a polynucleotide sequence may

also be introduced using standard mutagenesis techniques, such as oligonucleotide-directed site-specific mutagenesis (see Adelman et al., DNA 2:183, 1983). Alternatively, RNA molecules may be generated by in vitro or in vivo transcription of DNA sequences encoding a prostate tumor protein, or portion thereof, provided that the DNA is incorporated into a vector with a suitable RNA polymerase promoter (such as T7 or SP6). Certain portions may be used to prepare an encoded polypeptide, as described herein. In addition, or alternatively, a portion may be administered to a patient such that the encoded polypeptide is generated in vivo (e.g., by transfecting antigen-presenting cells, such as dendritic cells, with a cDNA construct encoding a prostate tumor polypeptide, and administering the transfected cells to the patient).

A portion of a sequence complementary to a coding sequence (i.e., an antisense polynucleotide) may also be used as a probe or to modulate gene expression. cDNA constructs that can be transcribed into antisense RNA may also be introduced into cells of tissues to facilitate the production of antisense RNA. An antisense polynucleotide may be used, as described herein, to inhibit expression of a tumor protein. Antisense technology can be used to control gene expression through triple-helix formation, which compromises the ability of the double helix to open sufficiently for the binding of polymerases, transcription factors or regulatory molecules (see Gee et al., In Huber and Carr, Molecular and Immunologic Approaches, Futura Publishing Co. (Mt. Kisco, NY; 1994)). Alternatively, an antisense molecule may be designed to hybridize with a control region of a gene (e.g., promoter, enhancer or transcription initiation site), and block transcription of the gene; or to block translation by inhibiting binding of a transcript to ribosomes.

A portion of a coding sequence, or of a complementary sequence, may also be designed as a probe or primer to detect gene expression. Probes may be labeled with a variety of reporter groups, such as radionuclides and enzymes, and are preferably at least 10 nucleotides in length, more preferably at least 20 nucleotides in length and still more preferably at least 30 nucleotides in length. Primers, as noted above, are preferably 22-30 nucleotides in length.

Any polynucleotide may be further modified to increase stability in vivo. Possible modifications include, but are not limited to, the addition of flanking sequences at the 5' and/or 3' ends; the use of phosphorothioate or 2' O-methyl rather than phosphodiesterase linkages in the backbone; and/or the inclusion of nontraditional bases such as inosine, queosine and wybutosine, as well as acetyl- methyl-, thio- and other modified forms of adenine, cytidine, guanine, thymine and uridine.

Nucleotide sequences as described herein may be joined to a variety of other nucleotide sequences using established recombinant DNA techniques. For example, a polynucleotide may be cloned into any of a variety of cloning vectors, including plasmids, phagemids, lambda phage derivatives and cosmids. Vectors of particular interest include expression vectors, replication vectors, probe generation vectors and sequencing vectors. In general, a vector will contain an origin of replication functional in at least one organism, convenient restriction endonuclease sites and one or more selectable markers. Other elements will depend upon the desired use, and will be apparent to those of ordinary skill in the art.

Within certain embodiments, polynucleotides may be formulated so as to permit entry into a cell of a mammal, and expression therein. Such formulations are particularly useful for therapeutic purposes, as described below. Those of ordinary skill in the art will appreciate that there are many ways to achieve expression of a polynucleotide in a target cell, and any suitable method may be employed. For example, a polynucleotide may be incorporated into a viral vector such as, but not limited to, adenovirus, adeno-associated virus, retrovirus, or vaccinia or other pox virus (e.g., avian pox virus). Techniques for incorporating DNA into such vectors are well known to those of ordinary skill in the art. A retroviral vector may additionally transfer or incorporate a gene for a selectable marker (to aid in the identification or selection of transduced cells) and/or a targeting moiety, such as a gene that encodes a ligand for a receptor on a specific target cell, to render the vector target specific. Targeting may also be accomplished using an antibody, by methods known to those of ordinary skill in the art.

Other formulations for therapeutic purposes include colloidal dispersion systems, such as macromolecule complexes, nanocapsules, microspheres, beads, and lipid-based systems including oil-in-water emulsions, micelles, mixed micelles, and liposomes. A preferred colloidal system for use as a delivery vehicle *in vitro* and *in vivo* is a liposome (*i.e.*, an artificial membrane vesicle). The preparation and use of such systems is well known in the art.

#### PROSTATE TUMOR POLYPEPTIDES

Within the context of the present invention, polypeptides may comprise at least an immunogenic portion of a prostate tumor protein or a variant thereof, as described herein. As noted above, a "prostate tumor protein" is a protein that is expressed by prostate tumor cells. Proteins that are prostate tumor proteins also react detectably within an immunoassay (such as an ELISA) with antisera from a patient with prostate cancer. Polypeptides as described herein may be of any length. Additional sequences derived from the native protein and/or heterologous sequences may be present, and such sequences may (but need not) possess further immunogenic or antigenic properties.

An "immunogenic portion," as used herein is a portion of a protein that is recognized (i.e., specifically bound) by a B-cell and/or T-cell surface antigen receptor. Such immunogenic portions generally comprise at least 5 amino acid residues, more preferably at least 10, and still more preferably at least 20 amino acid residues of a prostate tumor protein or a variant thereof. Certain preferred immunogenic portions include peptides in which an N-terminal leader sequence and/or transmembrane domain have been deleted. Other preferred immunogenic portions may contain a small N- and/or C-terminal deletion (e.g., 1-30 amino acids, preferably 5-15 amino acids), relative to the mature protein.

Immunogenic portions may generally be identified using well known techniques, such as those summarized in Paul, *Fundamental Immunology*, 3rd ed., 243-247 (Raven Press, 1993) and references cited therein. Such techniques include screening polypeptides for the ability to react with antigen-specific antibodies, antisera

and/or T-cell lines or clones. As used herein, antisera and antibodies are "antigen-specific" if they specifically bind to an antigen (i.e., they react with the protein in an ELISA or other immunoassay, and do not react detectably with unrelated proteins). Such antisera and antibodies may be prepared as described herein, and using well known techniques. An immunogenic portion of a native prostate tumor protein is a portion that reacts with such antisera and/or T-cells at a level that is not substantially less than the reactivity of the full length polypeptide (e.g., in an ELISA and/or T-cell reactivity assay). Such immunogenic portions may react within such assays at a level that is similar to or greater than the reactivity of the full length polypeptide. Such screens may generally be performed using methods well known to those of ordinary skill in the art, such as those described in Harlow and Lane, Antibodies: A Laboratory Manual, Cold Spring Harbor Laboratory, 1988. For example, a polypeptide may be immobilized on a solid support and contacted with patient sera to allow binding of antibodies within the sera to the immobilized polypeptide. Unbound sera may then be removed and bound antibodies detected using, for example, <sup>125</sup>I-labeled Protein A.

As noted above, a composition may comprise a variant of a native prostate tumor protein. A polypeptide "variant," as used herein, is a polypeptide that differs from a native prostate tumor protein in one or more substitutions, deletions, additions and/or insertions, such that the immunogenicity of the polypeptide is not substantially diminished. In other words, the ability of a variant to react with antigenspecific antisera may be enhanced or unchanged, relative to the native protein, or may be diminished by less than 50%, and preferably less than 20%, relative to the native protein. Such variants may generally be identified by modifying one of the above polypeptide sequences and evaluating the reactivity of the modified polypeptide with antigen-specific antibodies or antisera as described herein. Preferred variants include those in which one or more portions, such as an N-terminal leader sequence or transmembrane domain, have been removed. Other preferred variants include variants in which a small portion (e.g., 1-30 amino acids, preferably 5-15 amino acids) has been removed from the N- and/or C-terminal of the mature protein. Polypeptide variants preferably exhibit at least about 70%, more preferably at least about 90% and most

preferably at least about 95% identity (determined as described above) to the identified polypeptides.

Preferably, a variant contains conservative substitutions. Α "conservative substitution" is one in which an amino acid is substituted for another amino acid that has similar properties, such that one skilled in the art of peptide chemistry would expect the secondary structure and hydropathic nature of the polypeptide to be substantially unchanged. Amino acid substitutions may generally be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity and/or the amphipathic nature of the residues. For example, negatively charged amino acids include aspartic acid and glutamic acid; positively charged amino acids include lysine and arginine; and amino acids with uncharged polar head groups having similar hydrophilicity values include leucine, isoleucine and valine; glycine and alanine; asparagine and glutamine; and serine, threonine, phenylalanine and tyrosine. Other groups of amino acids that may represent conservative changes include: (1) ala, pro, gly, glu, asp, gln, asn, ser, thr; (2) cys, ser, tyr, thr; (3) val, ile, leu, met, ala, phe; (4) lys, arg, his; and (5) phe, tyr, trp, his. A variant may also, or alternatively, contain nonconservative changes. In a preferred embodiment, variant polypeptides differ from a native sequence by substitution, deletion or addition of five amino acids or fewer. Variants may also (or alternatively) be modified by, for example, the deletion or addition of amino acids that have minimal influence on the immunogenicity, secondary structure and hydropathic nature of the polypeptide.

As noted above, polypeptides may comprise a signal (or leader) sequence at the N-terminal end of the protein which co-translationally or post-translationally directs transfer of the protein. The polypeptide may also be conjugated to a linker or other sequence for ease of synthesis, purification or identification of the polypeptide (e.g., poly-His), or to enhance binding of the polypeptide to a solid support. For example, a polypeptide may be conjugated to an immunoglobulin Fc region.

Polypeptides may be prepared using any of a variety of well known techniques. Recombinant polypeptides encoded by DNA sequences as described above may be readily prepared from the DNA sequences using any of a variety of expression

vectors known to those of ordinary skill in the art. Expression may be achieved in any appropriate host cell that has been transformed or transfected with an expression vector containing a DNA molecule that encodes a recombinant polypeptide. Suitable host cells include prokaryotes, yeast and higher eukaryotic cells. Preferably, the host cells employed are *E. coli*, yeast or a mammalian cell line such as COS or CHO. Supernatants from suitable host/vector systems which secrete recombinant protein or polypeptide into culture media may be first concentrated using a commercially available filter. Following concentration, the concentrate may be applied to a suitable purification matrix such as an affinity matrix or an ion exchange resin. Finally, one or more reverse phase HPLC steps can be employed to further purify a recombinant polypeptide.

Portions and other variants having fewer than about 100 amino acids, and generally fewer than about 50 amino acids, may also be generated by synthetic means, using techniques well known to those of ordinary skill in the art. For example, such polypeptides may be synthesized using any of the commercially available solid-phase techniques, such as the Merrifield solid-phase synthesis method, where amino acids are sequentially added to a growing amino acid chain. See Merrifield, J. Am. Chem. Soc. 85:2149-2146, 1963. Equipment for automated synthesis of polypeptides is commercially available from suppliers such as Perkin Elmer/Applied BioSystems Division (Foster City, CA), and may be operated according to the manufacturer's instructions.

Within certain specific embodiments, a polypeptide may be a fusion protein that comprises multiple polypeptides as described herein, or that comprises at least one polypeptide as described herein and an unrelated sequence, such as a known tumor protein. A fusion partner may, for example, assist in providing T helper epitopes (an immunological fusion partner), preferably T helper epitopes recognized by humans, or may assist in expressing the protein (an expression enhancer) at higher yields than the native recombinant protein. Certain preferred fusion partners are both immunological and expression enhancing fusion partners. Other fusion partners may be selected so as to increase the solubility of the protein or to enable the protein to be

targeted to desired intracellular compartments. Still further fusion partners include affinity tags, which facilitate purification of the protein.

In certain embodiments, the present invention provides fusion proteins comprising a polypeptide disclosed herein together with at least one of the following known prostate antigens: prostate specific antigen (PSA); prostatic acid phosphatase (PAP); and prostate specific membrane antigen (PSMA). The protein sequences for PSMA, PAP and PSA are provided in SEQ ID NO: 473-475, respectively. In certain embodiments, the fusion proteins of the present invention comprise PSA, PAP and/or PSMA in combination with one or more of the following the inventive antigens: P501S (amino acid sequence provided in SEQ ID NO: 113); P703P (amino acid sequences provided in SEQ ID NO: 327, 329, 331); P704P (cDNA sequence provided in SEQ ID NO: 67); P712P (cDNA sequence provided in SEQ ID NO: 308); P775P (cDNA sequence provided in SEQ ID NO: 311); P776P (cDNA sequence provided in SEQ ID NO: 354); P790P (cDNA sequence provided in SEQ ID NO: 352). The amino acid sequence of a fusion protein of PSA, P703P and P501S is provided in SEQ ID NO: 476. In preferred embodiments, the inventive fusion proteins comprise one of the following combinations of antigens: PSA and P703P; PSA and P501S; PAP and P703P; PAP and P501S; PSMA and P703P; PSMA and P501S; PSA, PAP and P703P; PSA, PAP and P501S; PSA, PAP, PSMA and P703P, PSA, PAP, PSMA and P501S. One of skill in the art will appreciate that the order of polypeptides within a fusion protein can be altered without substantially changing the therapeutic, prophylactic or diagnostic properties of the fusion protein.

The fusion proteins described above are more immunogenic and will be effective in a greater number of prostate cancer patients than any of the individual components alone. The use of multiple antigens in the form of a fusion protein also lessens the likelihood of immunologic escape.

Fusion proteins may generally be prepared using standard techniques, including chemical conjugation. Preferably, a fusion protein is expressed as a recombinant protein, allowing the production of increased levels, relative to a non-fused protein, in an expression system. Briefly, DNA sequences encoding the polypeptide

components may be assembled separately, and ligated into an appropriate expression vector. The 3' end of the DNA sequence encoding one polypeptide component is ligated, with or without a peptide linker, to the 5' end of a DNA sequence encoding the second polypeptide component so that the reading frames of the sequences are in phase. This permits translation into a single fusion protein that retains the biological activity of both component polypeptides.

A peptide linker sequence may be employed to separate the first and the second polypeptide components by a distance sufficient to ensure that each polypeptide folds into its secondary and tertiary structures. Such a peptide linker sequence is incorporated into the fusion protein using standard techniques well known in the art. Suitable peptide linker sequences may be chosen based on the following factors: (1) their ability to adopt a flexible extended conformation; (2) their inability to adopt a secondary structure that could interact with functional epitopes on the first and second polypeptides; and (3) the lack of hydrophobic or charged residues that might react with the polypeptide functional epitopes. Preferred peptide linker sequences contain Gly, Asn and Ser residues. Other near neutral amino acids, such as Thr and Ala may also be used in the linker sequence. Amino acid sequences which may be usefully employed as linkers include those disclosed in Maratea et al., Gene 40:39-46, 1985; Murphy et al., Proc. Natl. Acad. Sci. USA 83:8258-8262, 1986; U.S. Patent No. 4,935,233 and U.S. Patent No. 4,751,180. The linker sequence may generally be from 1 to about 50 amino Linker sequences are not required when the first and second acids in length. polypeptides have non-essential N-terminal amino acid regions that can be used to separate the functional domains and prevent steric interference.

The ligated DNA sequences are operably linked to suitable transcriptional or translational regulatory elements. The regulatory elements responsible for expression of DNA are located only 5' to the DNA sequence encoding the first polypeptides. Similarly, stop codons required to end translation and transcription termination signals are only present 3' to the DNA sequence encoding the second polypeptide.

Fusion proteins are also provided that comprise a polypeptide of the present invention together with an unrelated immunogenic protein. Preferably the immunogenic protein is capable of eliciting a recall response. Examples of such proteins include tetanus, tuberculosis and hepatitis proteins (see, for example, Stoute et al. New Engl. J. Med., 336:86-91, 1997).

Within preferred embodiments, an immunological fusion partner is derived from protein D, a surface protein of the gram-negative bacterium Haemophilus influenza B (WO 91/18926). Preferably, a protein D derivative comprises approximately the first third of the protein (e.g., the first N-terminal 100-110 amino acids), and a protein D derivative may be lipidated. Within certain preferred embodiments, the first 109 residues of a Lipoprotein D fusion partner is included on the N-terminus to provide the polypeptide with additional exogenous T-cell epitopes and to increase the expression level in E. coli (thus functioning as an expression enhancer). The lipid tail ensures optimal presentation of the antigen to antigen presenting cells. Other fusion partners include the non-structural protein from influenzae virus, NS1 (hemaglutinin). Typically, the N-terminal 81 amino acids are used, although different fragments that include T-helper epitopes may be used.

In another embodiment, the immunological fusion partner is the protein known as LYTA, or a portion thereof (preferably a C-terminal portion). LYTA is derived from *Streptococcus pneumoniae*, which synthesizes an N-acetyl-L-alanine amidase known as amidase LYTA (encoded by the LytA gene; *Gene 43*:265-292, 1986). LYTA is an autolysin that specifically degrades certain bonds in the peptidoglycan backbone. The C-terminal domain of the LYTA protein is responsible for the affinity to the choline or to some choline analogues such as DEAE. This property has been exploited for the development of *E. coli* C-LYTA expressing plasmids useful for expression of fusion proteins. Purification of hybrid proteins containing the C-LYTA fragment at the amino terminus has been described (*see Biotechnology 10*:795-798, 1992). Within a preferred embodiment, a repeat portion of LYTA may be incorporated into a fusion protein. A repeat portion is found in the C-

terminal region starting at residue 178. A particularly preferred repeat portion incorporates residues 188-305.

In general, polypeptides (including fusion proteins) and polynucleotides as described herein are isolated. An "isolated" polypeptide or polynucleotide is one that is removed from its original environment. For example, a naturally-occurring protein is isolated if it is separated from some or all of the coexisting materials in the natural system. Preferably, such polypeptides are at least about 90% pure, more preferably at least about 95% pure and most preferably at least about 99% pure. A polynucleotide is considered to be isolated if, for example, it is cloned into a vector that is not a part of the natural environment.

#### **BINDING AGENTS**

The present invention further provides agents, such as antibodies and antigen-binding fragments thereof, that specifically bind to a prostate tumor protein. As used herein, an antibody, or antigen-binding fragment thereof, is said to "specifically bind" to a prostate tumor protein if it reacts at a detectable level (within, for example, an ELISA) with a prostate tumor protein, and does not react detectably with unrelated proteins under similar conditions. As used herein, "binding" refers to a noncovalent association between two separate molecules such that a complex is formed. The ability to bind may be evaluated by, for example, determining a binding constant for the formation of the complex. The binding constant is the value obtained when the concentrations. In general, two compounds are said to "bind," in the context of the present invention, when the binding constant for complex formation exceeds about 10<sup>3</sup> L/mol. The binding constant may be determined using methods well known in the art.

Binding agents may be further capable of differentiating between patients with and without a cancer, such as prostate cancer, using the representative assays provided herein. In other words, antibodies or other binding agents that bind to a prostate tumor protein will generate a signal indicating the presence of a cancer in at least about 20% of patients with the disease, and will generate a negative signal

indicating the absence of the disease in at least about 90% of individuals without the cancer. To determine whether a binding agent satisfies this requirement, biological samples (e.g., blood, sera, urine and/or tumor biopsies) from patients with and without a cancer (as determined using standard clinical tests) may be assayed as described herein for the presence of polypeptides that bind to the binding agent. It will be apparent that a statistically significant number of samples with and without the disease should be assayed. Each binding agent should satisfy the above criteria; however, those of ordinary skill in the art will recognize that binding agents may be used in combination to improve sensitivity.

Any agent that satisfies the above requirements may be a binding agent. For example, a binding agent may be a ribosome, with or without a peptide component, an RNA molecule or a polypeptide. In a preferred embodiment, a binding agent is an antibody or an antigen-binding fragment thereof. Antibodies may be prepared by any of a variety of techniques known to those of ordinary skill in the art. See, e.g., Harlow and Lane, Antibodies: A Laboratory Manual, Cold Spring Harbor Laboratory, 1988. In general, antibodies can be produced by cell culture techniques, including the generation of monoclonal antibodies as described herein, or via transfection of antibody genes into suitable bacterial or mammalian cell hosts, in order to allow for the production of recombinant antibodies. In one technique, an immunogen comprising the polypeptide is initially injected into any of a wide variety of mammals (e.g., mice, rats, rabbits, sheep or goats). In this step, the polypeptides of this invention may serve as the immunogen without modification. Alternatively, particularly for relatively short polypeptides, a superior immune response may be elicited if the polypeptide is joined to a carrier protein, such as bovine serum albumin or keyhole limpet hemocyanin. The immunogen is injected into the animal host, preferably according to a predetermined schedule incorporating one or more booster immunizations, and the animals are bled periodically. Polyclonal antibodies specific for the polypeptide may then be purified from such antisera by, for example, affinity chromatography using the polypeptide coupled to a suitable solid support.

Monoclonal antibodies specific for an antigenic polypeptide of interest may be prepared, for example, using the technique of Kohler and Milstein, Eur. J. Immunol. 6:511-519, 1976, and improvements thereto. Briefly, these methods involve the preparation of immortal cell lines capable of producing antibodies having the desired specificity (i.e., reactivity with the polypeptide of interest). Such cell lines may be produced, for example, from spleen cells obtained from an animal immunized as described above. The spleen cells are then immortalized by, for example, fusion with a myeloma cell fusion partner, preferably one that is syngeneic with the immunized animal. A variety of fusion techniques may be employed. For example, the spleen cells and myeloma cells may be combined with a nonionic detergent for a few minutes and then plated at low density on a selective medium that supports the growth of hybrid cells, but not myeloma cells. A preferred selection technique uses HAT (hypoxanthine, aminopterin, thymidine) selection. After a sufficient time, usually about 1 to 2 weeks, Single colonies are selected and their culture colonies of hybrids are observed. supernatants tested for binding activity against the polypeptide. Hybridomas having high reactivity and specificity are preferred.

Monoclonal antibodies may be isolated from the supernatants of growing hybridoma colonies. In addition, various techniques may be employed to enhance the yield, such as injection of the hybridoma cell line into the peritoneal cavity of a suitable vertebrate host, such as a mouse. Monoclonal antibodies may then be harvested from the ascites fluid or the blood. Contaminants may be removed from the antibodies by conventional techniques, such as chromatography, gel filtration, precipitation, and extraction. The polypeptides of this invention may be used in the purification process in, for example, an affinity chromatography step.

Within certain embodiments, the use of antigen-binding fragments of antibodies may be preferred. Such fragments include Fab fragments, which may be prepared using standard techniques. Briefly, immunoglobulins may be purified from rabbit serum by affinity chromatography on Protein A bead columns (Harlow and Lane, Antibodies: A Laboratory Manual, Cold Spring Harbor Laboratory, 1988) and digested

by papain to yield Fab and Fc fragments. The Fab and Fc fragments may be separated by affinity chromatography on protein A bead columns.

Monoclonal antibodies of the present invention may be coupled to one or more therapeutic agents. Suitable agents in this regard include radionuclides, differentiation inducers, drugs, toxins, and derivatives thereof. Preferred radionuclides include <sup>90</sup>Y, <sup>123</sup>I, <sup>125</sup>I, <sup>131</sup>I, <sup>186</sup>Re, <sup>188</sup>Re, <sup>211</sup>At, and <sup>212</sup>Bi. Preferred drugs include methotrexate, and pyrimidine and purine analogs. Preferred differentiation inducers include phorbol esters and butyric acid. Preferred toxins include ricin, abrin, diptheria toxin, cholera toxin, gelonin, Pseudomonas exotoxin, Shigella toxin, and pokeweed antiviral protein.

A therapeutic agent may be coupled (e.g., covalently bonded) to a suitable monoclonal antibody either directly or indirectly (e.g., via a linker group). A direct reaction between an agent and an antibody is possible when each possesses a substituent capable of reacting with the other. For example, a nucleophilic group, such as an amino or sulfhydryl group, on one may be capable of reacting with a carbonyl-containing group, such as an anhydride or an acid halide, or with an alkyl group containing a good leaving group (e.g., a halide) on the other.

Alternatively, it may be desirable to couple a therapeutic agent and an antibody via a linker group. A linker group can function as a spacer to distance an antibody from an agent in order to avoid interference with binding capabilities. A linker group can also serve to increase the chemical reactivity of a substituent on an agent or an antibody, and thus increase the coupling efficiency. An increase in chemical reactivity may also facilitate the use of agents, or functional groups on agents, which otherwise would not be possible.

It will be evident to those skilled in the art that a variety of bifunctional or polyfunctional reagents, both homo- and hetero-functional (such as those described in the catalog of the Pierce Chemical Co., Rockford, IL), may be employed as the linker group. Coupling may be effected, for example, through amino groups, carboxyl groups, sulfhydryl groups or oxidized carbohydrate residues. There are numerous references describing such methodology, e.g., U.S. Patent No. 4,671,958, to Rodwell et al.

Where a therapeutic agent is more potent when free from the antibody portion of the immunoconjugates of the present invention, it may be desirable to use a linker group which is cleavable during or upon internalization into a cell. A number of different cleavable linker groups have been described. The mechanisms for the intracellular release of an agent from these linker groups include cleavage by reduction of a disulfide bond (e.g., U.S. Patent No. 4,489,710, to Spitler), by irradiation of a photolabile bond (e.g., U.S. Patent No. 4,625,014, to Senter et al.), by hydrolysis of derivatized amino acid side chains (e.g., U.S. Patent No. 4,638,045, to Kohn et al.), by serum complement-mediated hydrolysis (e.g., U.S. Patent No. 4,671,958, to Rodwell et al.), and acid-catalyzed hydrolysis (e.g., U.S. Patent No. 4,569,789, to Blattler et al.).

It may be desirable to couple more than one agent to an antibody. In one embodiment, multiple molecules of an agent are coupled to one antibody molecule. In another embodiment, more than one type of agent may be coupled to one antibody. Regardless of the particular embodiment, immunoconjugates with more than one agent may be prepared in a variety of ways. For example, more than one agent may be coupled directly to an antibody molecule, or linkers which provide multiple sites for attachment can be used. Alternatively, a carrier can be used.

A carrier may bear the agents in a variety of ways, including covalent bonding either directly or via a linker group. Suitable carriers include proteins such as albumins (e.g., U.S. Patent No. 4,507,234, to Kato et al.), peptides and polysaccharides such as aminodextran (e.g., U.S. Patent No. 4,699,784, to Shih et al.). A carrier may also bear an agent by noncovalent bonding or by encapsulation, such as within a liposome vesicle (e.g., U.S. Patent Nos. 4,429,008 and 4,873,088). Carriers specific for radionuclide agents include radiohalogenated small molecules and chelating compounds. For example, U.S. Patent No. 4,735,792 discloses representative radiohalogenated small molecules and their synthesis. A radionuclide chelate may be formed from chelating compounds that include those containing nitrogen and sulfur atoms as the donor atoms for binding the metal, or metal oxide, radionuclide. For example, U.S. Patent No. 4,673,562, to Davison et al. discloses representative chelating compounds and their synthesis.

A variety of routes of administration for the antibodies and immunoconjugates may be used. Typically, administration will be intravenous, intramuscular, subcutaneous or in the bed of a resected tumor. It will be evident that the precise dose of the antibody/immunoconjugate will vary depending upon the antibody used, the antigen density on the tumor, and the rate of clearance of the antibody.

#### T CELLS

Immunotherapeutic compositions may also, or alternatively, comprise T cells specific for a prostate tumor protein. Such cells may generally be prepared *in vitro* or *ex vivo*, using standard procedures. For example, T cells may be isolated from bone marrow, peripheral blood, or a fraction of bone marrow or peripheral blood of a patient, using a commercially available cell separation system, such as the CEPRATE™ system, available from CellPro Inc., Bothell WA (*see also* U.S. Patent No. 5,240,856; U.S. Patent No. 5,215,926; WO 89/06280; WO 91/16116 and WO 92/07243). Alternatively, T cells may be derived from related or unrelated humans, non-human mammals, cell lines or cultures.

T cells may be stimulated with a prostate tumor polypeptide, polynucleotide encoding a prostate tumor polypeptide and/or an antigen presenting cell (APC) that expresses such a polypeptide. Such stimulation is performed under conditions and for a time sufficient to permit the generation of T cells that are specific for the polypeptide. Preferably, a prostate tumor polypeptide or polynucleotide is present within a delivery vehicle, such as a microsphere, to facilitate the generation of specific T cells.

T cells are considered to be specific for a prostate tumor polypeptide if the T cells kill target cells coated with the polypeptide or expressing a gene encoding the polypeptide. T cell specificity may be evaluated using any of a variety of standard techniques. For example, within a chromium release assay or proliferation assay, a stimulation index of more than two fold increase in lysis and/or proliferation, compared to negative controls, indicates T cell specificity. Such assays may be performed, for example, as described in Chen et al., Cancer Res. 54:1065-1070, 1994. Alternatively,

detection of the proliferation of T cells may be accomplished by a variety of known techniques. For example, T cell proliferation can be detected by measuring an increased rate of DNA synthesis (e.g., by pulse-labeling cultures of T cells with tritiated thymidine and measuring the amount of tritiated thymidine incorporated into DNA). Contact with a prostate tumor polypeptide (100 ng/ml - 100 µg/ml, preferably 200 ng/ml - 25 µg/ml) for 3 - 7 days should result in at least a two fold increase in proliferation of the T cells. Contact as described above for 2-3 hours should result in activation of the T cells, as measured using standard cytokine assays in which a two fold increase in the level of cytokine release (e.g., TNF or IFN-γ) is indicative of T cell activation (see Coligan et al., Current Protocols in Immunology, vol. 1, Wiley Interscience (Greene 1998)). T cells that have been activated in response to a prostate tumor polypeptide, polynucleotide or polypeptide-expressing APC may be CD4+ and/or Prostate tumor protein-specific T cells may be expanded using standard techniques. Within preferred embodiments, the T cells are derived from either a patient or a related, or unrelated, donor and are administered to the patient following stimulation and expansion.

For therapeutic purposes, CD4+ or CD8+ T cells that proliferate in response to a prostate tumor polypeptide, polynucleotide or APC can be expanded in number either *in vitro* or *in vivo*. Proliferation of such T cells *in vitro* may be accomplished in a variety of ways. For example, the T cells can be re-exposed to a prostate tumor polypeptide, or a short peptide corresponding to an immunogenic portion of such a polypeptide, with or without the addition of T cell growth factors, such as interleukin-2, and/or stimulator cells that synthesize a prostate tumor polypeptide. Alternatively, one or more T cells that proliferate in the presence of a prostate tumor protein can be expanded in number by cloning. Methods for cloning cells are well known in the art, and include limiting dilution.

### PHARMACEUTICAL COMPOSITIONS AND VACCINES

Within certain aspects, polypeptides, polynucleotides, T cells and/or binding agents disclosed herein may be incorporated into pharmaceutical compositions

or immunogenic compositions (*i.e.*, vaccines). Pharmaceutical compositions comprise one or more such compounds and a physiologically acceptable carrier. Vaccines may comprise one or more such compounds and a non-specific immune response enhancer. A non-specific immune response enhancer may be any substance that enhances an immune response to an exogenous antigen. Examples of non-specific immune response enhancers include adjuvants, biodegradable microspheres (*e.g.*, polylactic galactide) and liposomes (into which the compound is incorporated; *see e.g.*, Fullerton, U.S. Patent No. 4,235,877). Vaccine preparation is generally described in, for example, M.F. Powell and M.J. Newman, eds., "Vaccine Design (the subunit and adjuvant approach)," Plenum Press (NY, 1995). Pharmaceutical compositions and vaccines within the scope of the present invention may also contain other compounds, which may be biologically active or inactive. For example, one or more immunogenic portions of other tumor antigens may be present, either incorporated into a fusion polypeptide or as a separate compound, within the composition or vaccine.

A pharmaceutical composition or vaccine may contain DNA encoding one or more of the polypeptides as described above, such that the polypeptide is generated in situ. As noted above, the DNA may be present within any of a variety of delivery systems known to those of ordinary skill in the art, including nucleic acid expression systems, bacteria and viral expression systems. Numerous gene delivery techniques are well known in the art, such as those described by Rolland, Crit. Rev. Therap. Drug Carrier Systems 15:143-198, 1998, and references cited therein. Appropriate nucleic acid expression systems contain the necessary DNA sequences for expression in the patient (such as a suitable promoter and terminating signal). Bacterial delivery systems involve the administration of a bacterium (such as Bacillus-Calmette-Guerrin) that expresses an immunogenic portion of the polypeptide on its cell surface or secretes such an epitope. In a preferred embodiment, the DNA may be introduced using a viral expression system (e.g., vaccinia or other pox virus, retrovirus, or adenovirus), which may involve the use of a non-pathogenic (defective), replication competent virus. Suitable systems are disclosed, for example, in Fisher-Hoch et al., Proc. Natl. Acad. Sci. USA 86:317-321, 1989; Flexner et al., Ann. N.Y. Acad. Sci. 569:86-103, 1989; Flexner

et al., Vaccine 8:17-21, 1990; U.S. Patent Nos. 4,603,112, 4,769,330, and 5,017,487; WO 89/01973; U.S. Patent No. 4,777,127; GB 2,200,651; EP 0,345,242; WO 91/02805; Berkner, Biotechniques 6:616-627, 1988; Rosenfeld et al., Science 252:431-434, 1991; Kolls et al., Proc. Natl. Acad. Sci. USA 91:215-219, 1994; Kass-Eisler et al., Proc. Natl. Acad. Sci. USA 90:11498-11502, 1993; Guzman et al., Circulation 88:2838-2848, 1993; and Guzman et al., Cir. Res. 73:1202-1207, 1993. Techniques for incorporating DNA into such expression systems are well known to those of ordinary skill in the art. The DNA may also be "naked," as described, for example, in Ulmer et al., Science 259:1745-1749, 1993 and reviewed by Cohen, Science 259:1691-1692, 1993. The uptake of naked DNA may be increased by coating the DNA onto biodegradable beads, which are efficiently transported into the cells.

While any suitable carrier known to those of ordinary skill in the art may be employed in the pharmaceutical compositions of this invention, the type of carrier will vary depending on the mode of administration. Compositions of the present invention may be formulated for any appropriate manner of administration, including for example, topical, oral, nasal, intravenous, intracranial, intraperitoneal, subcutaneous or intramuscular administration. For parenteral administration, such as subcutaneous injection, the carrier preferably comprises water, saline, alcohol, a fat, a wax or a buffer. For oral administration, any of the above carriers or a solid carrier, such as mannitol, lactose, starch, magnesium stearate, sodium saccharine, talcum, cellulose, glucose, sucrose, and magnesium carbonate, may be employed. Biodegradable microspheres (e.g., polylactate polyglycolate) may also be employed as carriers for the pharmaceutical compositions of this invention. Suitable biodegradable microspheres are disclosed, for example, in U.S. Patent Nos. 4,897,268 and 5,075,109.

Such compositions may also comprise buffers (e.g., neutral buffered saline or phosphate buffered saline), carbohydrates (e.g., glucose, mannose, sucrose or dextrans), mannitol, proteins, polypeptides or amino acids such as glycine, antioxidants, chelating agents such as EDTA or glutathione, adjuvants (e.g., aluminum hydroxide) and/or preservatives. Alternatively, compositions of the present invention may be

formulated as a lyophilizate. Compounds may also be encapsulated within liposomes using well known technology.

Any of a variety of non-specific immune response enhancers may be employed in the vaccines of this invention. For example, an adjuvant may be included. Most adjuvants contain a substance designed to protect the antigen from rapid catabolism, such as aluminum hydroxide or mineral oil, and a stimulator of immune responses, such as lipid A, *Bortadella pertussis* or *Mycobacterium tuberculosis* derived proteins. Suitable adjuvants are commercially available as, for example, Freund's Incomplete Adjuvant and Complete Adjuvant (Difco Laboratories, Detroit, MI); Merck Adjuvant 65 (Merck and Company, Inc., Rahway, NJ); aluminum salts such as aluminum hydroxide gel (alum) or aluminum phosphate; salts of calcium, iron or zinc; an insoluble suspension of acylated tyrosine; acylated sugars; cationically or anionically derivatized polysaccharides; polyphosphazenes; biodegradable microspheres; monophosphoryl lipid A and quil A. Cytokines, such as GM-CSF or interleukin-2, -7, or -12, may also be used as adjuvants.

Within the vaccines provided herein, the adjuvant composition is preferably designed to induce an immune response predominantly of the Th1 type. High levels of Th1-type cytokines (e.g., IFN-γ, IL-2 and IL-12) tend to favor the induction of cell mediated immune responses to an administered antigen. In contrast, high levels of Th2-type cytokines (e.g., IL-4, IL-5, IL-6, IL-10 and TNF-β) tend to favor the induction of humoral immune responses. Following application of a vaccine as provided herein, a patient will support an immune response that includes Th1- and Th2-type responses. Within a preferred embodiment, in which a response is predominantly Th1-type, the level of Th1-type cytokines will increase to a greater extent than the level of Th2-type cytokines. The levels of these cytokines may be readily assessed using standard assays. For a review of the families of cytokines, see Mosmann and Coffman, Ann. Rev. Immunol. 7:145-173, 1989.

Preferred adjuvants for use in eliciting a predominantly Th1-type response include, for example, a combination of monophosphoryl lipid A, preferably 3-de-O-acylated monophosphoryl lipid A (3D-MPL), together with an aluminum salt.

MPL adjuvants are available from Ribi ImmunoChem Research Inc. (Hamilton, MT; see US Patent Nos. 4,436,727; 4,877,611; 4,866,034 and 4,912,094). CpG-containing oligonucleotides (in which the CpG dinucleotide is unmethylated) also induce a predominantly Th1 response. Such oligonucleotides are well known and are described, for example, in WO 96/02555. Another preferred adjuvant is a saponin, preferably QS21, which may be used alone or in combination with other adjuvants. For example, an enhanced system involves the combination of a monophosphoryl lipid A and saponin derivative, such as the combination of QS21 and 3D-MPL as described in WO 94/00153, or a less reactogenic composition where the QS21 is quenched with cholesterol, as described in WO 96/33739. Other preferred formulations comprises an oil-in-water emulsion and tocopherol. A particularly potent adjuvant formulation involving QS21, 3D-MPL and tocopherol in an oil-in-water emulsion is described in WO 95/17210. Any vaccine provided herein may be prepared using well known methods that result in a combination of antigen, immune response enhancer and a suitable carrier or excipient.

The compositions described herein may be administered as part of a sustained release formulation (i.e., a formulation such as a capsule or sponge that effects a slow release of compound following administration). Such formulations may generally be prepared using well known technology and administered by, for example, oral, rectal or subcutaneous implantation, or by implantation at the desired target site. Sustained-release formulations may contain a polypeptide, polynucleotide or antibody dispersed in a carrier matrix and/or contained within a reservoir surrounded by a rate controlling membrane. Carriers for use within such formulations are biocompatible, and may also be biodegradable; preferably the formulation provides a relatively constant level of active component release. The amount of active compound contained within a sustained release formulation depends upon the site of implantation, the rate and expected duration of release and the nature of the condition to be treated or prevented.

Any of a variety of delivery vehicles may be employed within pharmaceutical compositions and vaccines to facilitate production of an antigen-specific

immune response that targets tumor cells. Delivery vehicles include antigen presenting cells (APCs), such as dendritic cells, macrophages, B cells, monocytes and other cells that may be engineered to be efficient APCs. Such cells may, but need not, be genetically modified to increase the capacity for presenting the antigen, to improve activation and/or maintenance of the T cell response, to have anti-tumor effects per se and/or to be immunologically compatible with the receiver (i.e., matched HLA haplotype). APCs may generally be isolated from any of a variety of biological fluids and organs, including tumor and peritumoral tissues, and may be autologous, allogeneic, syngeneic or xenogeneic cells.

Certain preferred embodiments of the present invention use dendritic cells or progenitors thereof as antigen-presenting cells. Dendritic cells are highly potent APCs (Banchereau and Steinman, *Nature 392*:245-251, 1998) and have been shown to be effective as a physiological adjuvant for eliciting prophylactic or therapeutic antitumor immunity (*see* Timmerman and Levy, *Ann. Rev. Med. 50*:507-529, 1999). In general, dendritic cells may be identified based on their typical shape (stellate *in situ*, with marked cytoplasmic processes (dendrites) visible *in vitro*) and based on the lack of differentiation markers of B cells (CD19 and CD20), T cells (CD3), monocytes (CD14) and natural killer cells (CD56), as determined using standard assays. Dendritic cells may, of course, be engineered to express specific cell-surface receptors or ligands that are not commonly found on dendritic cells *in vivo* or *ex vivo*, and such modified dendritic cells are contemplated by the present invention. As an alternative to dendritic cells, secreted vesicles antigen-loaded dendritic cells (called exosomes) may be used within a vaccine (*see* Zitvogel et al., *Nature Med. 4:*594-600, 1998).

Dendritic cells and progenitors may be obtained from peripheral blood, bone marrow, tumor-infiltrating cells, peritumoral tissues-infiltrating cells, lymph nodes, spleen, skin, umbilical cord blood or any other suitable tissue or fluid. For example, dendritic cells may be differentiated *ex vivo* by adding a combination of cytokines such as GM-CSF, IL-4, IL-13 and/or TNFα to cultures of monocytes harvested from peripheral blood. Alternatively, CD34 positive cells harvested from peripheral blood, umbilical cord blood or bone marrow may be differentiated into

dendritic cells by adding to the culture medium combinations of GM-CSF, IL-3, TNF $\alpha$ , CD40 ligand, LPS, flt3 ligand and/or other compound(s) that induce maturation and proliferation of dendritic cells.

Dendritic cells are conveniently categorized as "immature" and "mature" cells, which allows a simple way to discriminate between two well characterized phenotypes. However, this nomenclature should not be construed to exclude all possible intermediate stages of differentiation. Immature dendritic cells are characterized as APC with a high capacity for antigen uptake and processing, which correlates with the high expression of Fcy receptor, mannose receptor and DEC-205 marker. The mature phenotype is typically characterized by a lower expression of these markers, but a high expression of cell surface molecules responsible for T cell activation such as class I and class II MHC, adhesion molecules (e.g., CD54 and CD11) and costimulatory molecules (e.g., CD40, CD80 and CD86).

APCs may generally be transfected with a polynucleotide encoding a prostate tumor protein (or portion or other variant thereof) such that the prostate tumor polypeptide, or an immunogenic portion thereof, is expressed on the cell surface. Such transfection may take place ex vivo, and a composition or vaccine comprising such transfected cells may then be used for therapeutic purposes, as described herein. Alternatively, a gene delivery vehicle that targets a dendritic or other antigen presenting cell may be administered to a patient, resulting in transfection that occurs in vivo. In vivo and ex vivo transfection of dendritic cells, for example, may generally be performed using any methods known in the art, such as those described in WO 97/24447, or the gene gun approach described by Mahvi et al., Immunology and cell Biology 75:456-460, 1997. Antigen loading of dendritic cells may be achieved by incubating dendritic cells or progenitor cells with the prostate tumor polypeptide, DNA (naked or within a plasmid vector) or RNA; or with antigen-expressing recombinant bacterium or viruses (e.g., vaccinia, fowlpox, adenovirus or lentivirus vectors). Prior to loading, the polypeptide may be covalently conjugated to an immunological partner that provides T cell help (e.g., a carrier molecule). Alternatively, a dendritic cell may be

pulsed with a non-conjugated immunological partner, separately or in the presence of the polypeptide.

#### **CANCER THERAPY**

In further aspects of the present invention, the compositions described herein may be used for immunotherapy of cancer, such as prostate cancer. Within such methods, pharmaceutical compositions and vaccines are typically administered to a patient. As used herein, a "patient" refers to any warm-blooded animal, preferably a human. A patient may or may not be afflicted with cancer. Accordingly, the above pharmaceutical compositions and vaccines may be used to prevent the development of a cancer or to treat a patient afflicted with a cancer. A cancer may be diagnosed using criteria generally accepted in the art, including the presence of a malignant tumor. Pharmaceutical compositions and vaccines may be administered either prior to or following surgical removal of primary tumors and/or treatment such as administration of radiotherapy or conventional chemotherapeutic drugs.

Within certain embodiments, immunotherapy may be active immunotherapy, in which treatment relies on the *in vivo* stimulation of the endogenous host immune system to react against tumors with the administration of immune response-modifying agents (such as polypeptides and polynucleotides disclosed herein).

Within other embodiments, immunotherapy may be passive immunotherapy, in which treatment involves the delivery of agents with established tumor-immune reactivity (such as effector cells or antibodies) that can directly or indirectly mediate antitumor effects and does not necessarily depend on an intact host immune system. Examples of effector cells include T cells as discussed above, T lymphocytes (such as CD8+ cytotoxic T lymphocytes and CD4+ T-helper tumor-infiltrating lymphocytes), killer cells (such as Natural Killer cells and lymphokine-activated killer cells), B cells and antigen-presenting cells (such as dendritic cells and macrophages) expressing a polypeptide provided herein. T cell receptors and antibody receptors specific for the polypeptides recited herein may be cloned, expressed and transferred into other vectors or effector cells for adoptive immunotherapy. The

polypeptides provided herein may also be used to generate antibodies or anti-idiotypic antibodies (as described above and in U.S. Patent No. 4,918,164) for passive immunotherapy.

Effector cells may generally be obtained in sufficient quantities for adoptive immunotherapy by growth in vitro, as described herein. Culture conditions for expanding single antigen-specific effector cells to several billion in number with retention of antigen recognition in vivo are well known in the art. Such in vitro culture conditions typically use intermittent stimulation with antigen, often in the presence of cytokines (such as IL-2) and non-dividing feeder cells. As noted above, immunoreactive polypeptides as provided herein may be used to rapidly expand antigen-specific T cell cultures in order to generate a sufficient number of cells for immunotherapy. In particular, antigen-presenting cells, such as dendritic, macrophage, monocyte, fibroblast or B cells, may be pulsed with immunoreactive polypeptides or transfected with one or more polynucleotides using standard techniques well known in the art. For example, antigen-presenting cells can be transfected with a polynucleotide having a promoter appropriate for increasing expression in a recombinant virus or other expression system. Cultured effector cells for use in therapy must be able to grow and distribute widely, and to survive long term in vivo. Studies have shown that cultured effector cells can be induced to grow in vivo and to survive long term in substantial numbers by repeated stimulation with antigen supplemented with IL-2 (see, for example, Cheever et al., Immunological Reviews 157:177, 1997).

Alternatively, a vector expressing a polypeptide recited herein may be introduced into antigen presenting cells taken from a patient and clonally propagated ex vivo for transplant back into the same patient. Transfected cells may be reintroduced into the patient using any means known in the art, preferably in sterile form by intravenous, intracavitary, intraperitoneal or intratumor administration.

Routes and frequency of administration of the therapeutic compositions disclosed herein, as well as dosage, will vary from individual to individual, and may be readily established using standard techniques. In general, the pharmaceutical compositions and vaccines may be administered by injection (e.g., intracutaneous,

intramuscular, intravenous or subcutaneous), intranasally (e.g., by aspiration) or orally. Preferably, between 1 and 10 doses may be administered over a 52 week period. Preferably, 6 doses are administered, at intervals of 1 month, and booster vaccinations may be given periodically thereafter. Alternate protocols may be appropriate for individual patients. A suitable dose is an amount of a compound that, when administered as described above, is capable of promoting an anti-tumor immune response, and is at least 10-50% above the basal (i.e., untreated) level. Such response can be monitored by measuring the anti-tumor antibodies in a patient or by vaccinedependent generation of cytolytic effector cells capable of killing the patient's tumor cells in vitro. Such vaccines should also be capable of causing an immune response that leads to an improved clinical outcome (e.g., more frequent remissions, complete or partial or longer disease-free survival) in vaccinated patients as compared to non-In general, for pharmaceutical compositions and vaccines vaccinated patients. comprising one or more polypeptides, the amount of each polypeptide present in a dose ranges from about 100 µg to 5 mg per kg of host. Suitable dose sizes will vary with the size of the patient, but will typically range from about 0.1 mL to about 5 mL.

In general, an appropriate dosage and treatment regimen provides the active compound(s) in an amount sufficient to provide therapeutic and/or prophylactic benefit. Such a response can be monitored by establishing an improved clinical outcome (e.g., more frequent remissions, complete or partial, or longer disease-free survival) in treated patients as compared to non-treated patients. Increases in preexisting immune responses to a prostate tumor protein generally correlate with an improved clinical outcome. Such immune responses may generally be evaluated using standard proliferation, cytotoxicity or cytokine assays, which may be performed using samples obtained from a patient before and after treatment.

#### METHODS FOR DETECTING CANCER

In general, a cancer may be detected in a patient based on the presence of one or more prostate tumor proteins and/or polynucleotides encoding such proteins in a biological sample (for example, blood, sera, urine and/or tumor biopsies) obtained from

the patient. In other words, such proteins may be used as markers to indicate the presence or absence of a cancer such as prostate cancer. In addition, such proteins may be useful for the detection of other cancers. The binding agents provided herein generally permit detection of the level of antigen that binds to the agent in the biological sample. Polynucleotide primers and probes may be used to detect the level of mRNA encoding a tumor protein, which is also indicative of the presence or absence of a cancer. In general, a prostate tumor sequence should be present at a level that is at least three fold higher in tumor tissue than in normal tissue

There are a variety of assay formats known to those of ordinary skill in the art for using a binding agent to detect polypeptide markers in a sample. See, e.g., Harlow and Lane, Antibodies: A Laboratory Manual, Cold Spring Harbor Laboratory, 1988. In general, the presence or absence of a cancer in a patient may be determined by (a) contacting a biological sample obtained from a patient with a binding agent; (b) detecting in the sample a level of polypeptide that binds to the binding agent; and (c) comparing the level of polypeptide with a predetermined cut-off value.

In a preferred embodiment, the assay involves the use of binding agent immobilized on a solid support to bind to and remove the polypeptide from the remainder of the sample. The bound polypeptide may then be detected using a detection reagent that contains a reporter group and specifically binds to the binding agent/polypeptide complex. Such detection reagents may comprise, for example, a binding agent that specifically binds to the polypeptide or an antibody or other agent that specifically binds to the binding agent, such as an anti-immunoglobulin, protein G, protein A or a lectin. Alternatively, a competitive assay may be utilized, in which a polypeptide is labeled with a reporter group and allowed to bind to the immobilized binding agent after incubation of the binding agent with the sample. The extent to which components of the sample inhibit the binding of the labeled polypeptide to the binding agent is indicative of the reactivity of the sample with the immobilized binding agent. Suitable polypeptides for use within such assays include full length prostate tumor proteins and portions thereof to which the binding agent binds, as described above.

The solid support may be any material known to those of ordinary skill in the art to which the tumor protein may be attached. For example, the solid support may be a test well in a microtiter plate or a nitrocellulose or other suitable membrane. Alternatively, the support may be a bead or disc, such as glass, fiberglass, latex or a plastic material such as polystyrene or polyvinylchloride. The support may also be a magnetic particle or a fiber optic sensor, such as those disclosed, for example, in U.S. Patent No. 5,359,681. The binding agent may be immobilized on the solid support using a variety of techniques known to those of skill in the art, which are amply described in the patent and scientific literature. In the context of the present invention, the term "immobilization" refers to both noncovalent association, such as adsorption, and covalent attachment (which may be a direct linkage between the agent and functional groups on the support or may be a linkage by way of a cross-linking agent). Immobilization by adsorption to a well in a microtiter plate or to a membrane is preferred. In such cases, adsorption may be achieved by contacting the binding agent, in a suitable buffer, with the solid support for a suitable amount of time. The contact time varies with temperature, but is typically between about 1 hour and about 1 day. In general, contacting a well of a plastic microtiter plate (such as polystyrene or polyvinylchloride) with an amount of binding agent ranging from about 10 ng to about  $10 \ \mu g$ , and preferably about  $100 \ ng$  to about  $1 \ \mu g$ , is sufficient to immobilize an adequate amount of binding agent.

Covalent attachment of binding agent to a solid support may generally be achieved by first reacting the support with a bifunctional reagent that will react with both the support and a functional group, such as a hydroxyl or amino group, on the binding agent. For example, the binding agent may be covalently attached to supports having an appropriate polymer coating using benzoquinone or by condensation of an aldehyde group on the support with an amine and an active hydrogen on the binding partner (see, e.g., Pierce Immunotechnology Catalog and Handbook, 1991, at A12-A13).

In certain embodiments, the assay is a two-antibody sandwich assay. This assay may be performed by first contacting an antibody that has been immobilized

on a solid support, commonly the well of a microtiter plate, with the sample, such that polypeptides within the sample are allowed to bind to the immobilized antibody. Unbound sample is then removed from the immobilized polypeptide-antibody complexes and a detection reagent (preferably a second antibody capable of binding to a different site on the polypeptide) containing a reporter group is added. The amount of detection reagent that remains bound to the solid support is then determined using a method appropriate for the specific reporter group.

More specifically, once the antibody is immobilized on the support as described above, the remaining protein binding sites on the support are typically blocked. Any suitable blocking agent known to those of ordinary skill in the art, such as bovine serum albumin or Tween 20<sup>TM</sup> (Sigma Chemical Co., St. Louis, MO). The immobilized antibody is then incubated with the sample, and polypeptide is allowed to bind to the antibody. The sample may be diluted with a suitable diluent, such as phosphate-buffered saline (PBS) prior to incubation. In general, an appropriate contact time (i.e., incubation time) is a period of time that is sufficient to detect the presence of polypeptide within a sample obtained from an individual with prostate cancer. Preferably, the contact time is sufficient to achieve a level of binding that is at least about 95% of that achieved at equilibrium between bound and unbound polypeptide. Those of ordinary skill in the art will recognize that the time necessary to achieve equilibrium may be readily determined by assaying the level of binding that occurs over a period of time. At room temperature, an incubation time of about 30 minutes is generally sufficient.

Unbound sample may then be removed by washing the solid support with an appropriate buffer, such as PBS containing 0.1% Tween 20<sup>TM</sup>. The second antibody, which contains a reporter group, may then be added to the solid support. Preferred reporter groups include those groups recited above.

The detection reagent is then incubated with the immobilized antibodypolypeptide complex for an amount of time sufficient to detect the bound polypeptide. An appropriate amount of time may generally be determined by assaying the level of binding that occurs over a period of time. Unbound detection reagent is then removed

and bound detection reagent is detected using the reporter group. The method employed for detecting the reporter group depends upon the nature of the reporter group. For radioactive groups, scintillation counting or autoradiographic methods are generally appropriate. Spectroscopic methods may be used to detect dyes, luminescent groups and fluorescent groups. Biotin may be detected using avidin, coupled to a different reporter group (commonly a radioactive or fluorescent group or an enzyme). Enzyme reporter groups may generally be detected by the addition of substrate (generally for a specific period of time), followed by spectroscopic or other analysis of the reaction products.

To determine the presence or absence of a cancer, such as prostate cancer, the signal detected from the reporter group that remains bound to the solid support is generally compared to a signal that corresponds to a predetermined cut-off value. In one preferred embodiment, the cut-off value for the detection of a cancer is the average mean signal obtained when the immobilized antibody is incubated with samples from patients without the cancer. In general, a sample generating a signal that is three standard deviations above the predetermined cut-off value is considered positive for the cancer. In an alternate preferred embodiment, the cut-off value is determined using a Receiver Operator Curve, according to the method of Sackett et al., Clinical Epidemiology: A Basic Science for Clinical Medicine, Little Brown and Co., 1985, p. 106-7. Briefly, in this embodiment, the cut-off value may be determined from a plot of pairs of true positive rates (i.e., sensitivity) and false positive rates (100%-specificity) that correspond to each possible cut-off value for the diagnostic test result. The cut-off value on the plot that is the closest to the upper left-hand corner (i.e., the value that encloses the largest area) is the most accurate cut-off value, and a sample generating a signal that is higher than the cut-off value determined by this method may be considered positive. Alternatively, the cut-off value may be shifted to the left along the plot, to minimize the false positive rate, or to the right, to minimize the false negative rate. In general, a sample generating a signal that is higher than the cut-off value determined by this method is considered positive for a cancer.

In a related embodiment, the assay is performed in a flow-through or strip test format, wherein the binding agent is immobilized on a membrane, such as nitrocellulose. In the flow-through test, polypeptides within the sample bind to the immobilized binding agent as the sample passes through the membrane. A second, labeled binding agent then binds to the binding agent-polypeptide complex as a solution containing the second binding agent flows through the membrane. The detection of bound second binding agent may then be performed as described above. In the strip test format, one end of the membrane to which binding agent is bound is immersed in a solution containing the sample. The sample migrates along the membrane through a region containing second binding agent and to the area of immobilized binding agent. Concentration of second binding agent at the area of immobilized antibody indicates the presence of a cancer. Typically, the concentration of second binding agent at that site generates a pattern, such as a line, that can be read visually. The absence of such a pattern indicates a negative result. In general, the amount of binding agent immobilized on the membrane is selected to generate a visually discernible pattern when the biological sample contains a level of polypeptide that would be sufficient to generate a positive signal in the two-antibody sandwich assay, in the format discussed above. Preferred binding agents for use in such assays are antibodies and antigen-binding fragments thereof. Preferably, the amount of antibody immobilized on the membrane ranges from about 25 ng to about 1µg, and more preferably from about 50 ng to about 500 ng. Such tests can typically be performed with a very small amount of biological sample.

Of course, numerous other assay protocols exist that are suitable for use with the tumor proteins or binding agents of the present invention. The above descriptions are intended to be exemplary only. For example, it will be apparent to those of ordinary skill in the art that the above protocols may be readily modified to use prostate tumor polypeptides to detect antibodies that bind to such polypeptides in a biological sample. The detection of such prostate tumor protein specific antibodies may correlate with the presence of a cancer.

A cancer may also, or alternatively, be detected based on the presence of T cells that specifically react with a prostate tumor protein in a biological sample. Within certain methods, a biological sample comprising CD4+ and/or CD8+ T cells isolated from a patient is incubated with a prostate tumor polypeptide, a polynucleotide encoding such a polypeptide and/or an APC that expresses at least an immunogenic portion of such a polypeptide, and the presence or absence of specific activation of the T cells is detected. Suitable biological samples include, but are not limited to, isolated T cells. For example, T cells may be isolated from a patient by routine techniques (such as by Ficoll/Hypaque density gradient centrifugation of peripheral blood lymphocytes). T cells may be incubated in vitro for 2-9 days (typically 4 days) at 37°C with prostate tumor polypeptide (e.g., 5 - 25  $\mu$ g/ml). It may be desirable to incubate another aliquot of a T cell sample in the absence of prostate tumor polypeptide to serve as a control. For CD4<sup>+</sup> T cells, activation is preferably detected by evaluating proliferation of the T cells. For CD8+ T cells, activation is preferably detected by evaluating cytolytic activity. A level of proliferation that is at least two fold greater and/or a level of cytolytic activity that is at least 20% greater than in disease-free patients indicates the presence of a cancer in the patient.

As noted above, a cancer may also, or alternatively, be detected based on the level of mRNA encoding a prostate tumor protein in a biological sample. For example, at least two oligonucleotide primers may be employed in a polymerase chain reaction (PCR) based assay to amplify a portion of a prostate tumor cDNA derived from a biological sample, wherein at least one of the oligonucleotide primers is specific for (*i.e.*, hybridizes to) a polynucleotide encoding the prostate tumor protein. The amplified cDNA is then separated and detected using techniques well known in the art, such as gel electrophoresis. Similarly, oligonucleotide probes that specifically hybridize to a polynucleotide encoding a prostate tumor protein may be used in a hybridization assay to detect the presence of polynucleotide encoding the tumor protein in a biological sample.

To permit hybridization under assay conditions, oligonucleotide primers and probes should comprise an oligonucleotide sequence that has at least about 60%,

preferably at least about 75% and more preferably at least about 90%, identity to a portion of a polynucleotide encoding a prostate tumor protein that is at least 10 nucleotides, and preferably at least 20 nucleotides, in length. Preferably, oligonucleotide primers and/or probes will hybridize to a polynucleotide encoding a polypeptide disclosed herein under moderately stringent conditions, as defined above. Oligonucleotide primers and/or probes which may be usefully employed in the diagnostic methods described herein preferably are at least 10-40 nucleotides in length. In a preferred embodiment, the oligonucleotide primers comprise at least 10 contiguous nucleotides, more preferably at least 15 contiguous nucleotides, of a DNA molecule having a sequence recited in SEQ ID NO: 1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375 and 381. Techniques for both PCR based assays and hybridization assays are well known in the art (see, for example, Mullis et al., Cold Spring Harbor Symp. Quant. Biol., 51:263, 1987; Erlich ed., PCR Technology, Stockton Press, NY, 1989).

One preferred assay employs RT-PCR, in which PCR is applied in conjunction with reverse transcription. Typically, RNA is extracted from a biological sample, such as biopsy tissue, and is reverse transcribed to produce cDNA molecules. PCR amplification using at least one specific primer generates a cDNA molecule, which may be separated and visualized using, for example, gel electrophoresis. Amplification may be performed on biological samples taken from a test patient and from an individual who is not afflicted with a cancer. The amplification reaction may be performed on several dilutions of cDNA spanning two orders of magnitude. A two-fold or greater increase in expression in several dilutions of the test patient sample as compared to the same dilutions of the non-cancerous sample is typically considered positive.

In another embodiment, the disclosed compositions may be used as markers for the progression of cancer. In this embodiment, assays as described above for the diagnosis of a cancer may be performed over time, and the change in the level of reactive polypeptide(s) or polynucleotide evaluated. For example, the assays may be performed every 24-72 hours for a period of 6 months to 1 year, and thereafter

performed as needed. In general, a cancer is progressing in those patients in whom the level of polypeptide or polynucleotide detected increases over time. In contrast, the cancer is not progressing when the level of reactive polypeptide or polynucleotide either remains constant or decreases with time.

Certain *in vivo* diagnostic assays may be performed directly on a tumor. One such assay involves contacting tumor cells with a binding agent. The bound binding agent may then be detected directly or indirectly via a reporter group. Such binding agents may also be used in histological applications. Alternatively, polynucleotide probes may be used within such applications.

As noted above, to improve sensitivity, multiple prostate tumor protein markers may be assayed within a given sample. It will be apparent that binding agents specific for different proteins provided herein may be combined within a single assay. Further, multiple primers or probes may be used concurrently. The selection of tumor protein markers may be based on routine experiments to determine combinations that results in optimal sensitivity. In addition, or alternatively, assays for tumor proteins provided herein may be combined with assays for other known tumor antigens.

#### DIAGNOSTIC KITS

The present invention further provides kits for use within any of the above diagnostic methods. Such kits typically comprise two or more components necessary for performing a diagnostic assay. Components may be compounds, reagents, containers and/or equipment. For example, one container within a kit may contain a monoclonal antibody or fragment thereof that specifically binds to a prostate tumor protein. Such antibodies or fragments may be provided attached to a support material, as described above. One or more additional containers may enclose elements, such as reagents or buffers, to be used in the assay. Such kits may also, or alternatively, contain a detection reagent as described above that contains a reporter group suitable for direct or indirect detection of antibody binding.

Alternatively, a kit may be designed to detect the level of mRNA encoding a prostate tumor protein in a biological sample. Such kits generally comprise

at least one oligonucleotide probe or primer, as described above, that hybridizes to a polynucleotide encoding a prostate tumor protein. Such an oligonucleotide may be used, for example, within a PCR or hybridization assay. Additional components that may be present within such kits include a second oligonucleotide and/or a diagnostic reagent or container to facilitate the detection of a polynucleotide encoding a prostate tumor protein.

The following Examples are offered by way of illustration and not by way of limitation.

#### **EXAMPLES**

#### · EXAMPLE 1

# ISOLATION AND CHARACTERIZATION OF PROSTATE TUMOR POLYPEPTIDES

This Example describes the isolation of certain prostate tumor polypeptides from a prostate tumor cDNA library.

A human prostate tumor cDNA expression library was constructed from prostate tumor poly A+ RNA using a Superscript Plasmid System for cDNA Synthesis and Plasmid Cloning kit (BRL Life Technologies, Gaithersburg, MD 20897) following the manufacturer's protocol. Specifically, prostate tumor tissues were homogenized with polytron (Kinematica, Switzerland) and total RNA was extracted using Trizol reagent (BRL Life Technologies) as directed by the manufacturer. The poly A+ RNA was then purified using a Qiagen oligotex spin column mRNA purification kit (Qiagen, Santa Clarita, CA 91355) according to the manufacturer's protocol. First-strand cDNA was synthesized using the Notl/Oligo-dT18 primer. Double-stranded cDNA was synthesized, ligated with EcoRI/BAXI adaptors (Invitrogen, San Diego, CA) and digested with Notl. Following size fractionation with Chroma Spin-1000 columns (Clontech, Palo Alto, CA), the cDNA was ligated into the EcoRI/Notl site of pCDNA3.1 (Invitrogen) and transformed into ElectroMax *E. coli* DH10B cells (BRL Life Technologies) by electroporation.

Using the same procedure, a normal human pancreas cDNA expression library was prepared from a pool of six tissue specimens (Clontech). The cDNA libraries were characterized by determining the number of independent colonies, the percentage of clones that carried insert, the average insert size and by sequence analysis. The prostate tumor library contained  $1.64 \times 10^7$  independent colonies, with 70% of clones having an insert and the average insert size being 1745 base pairs. The normal pancreas cDNA library contained  $3.3 \times 10^6$  independent colonies, with 69% of clones

having inserts and the average insert size being 1120 base pairs. For both libraries, sequence analysis showed that the majority of clones had a full length cDNA sequence and were synthesized from mRNA, with minimal rRNA and mitochondrial DNA contamination.

cDNA library subtraction was performed using the above prostate tumor and normal pancreas cDNA libraries, as described by Hara *et al.* (*Blood*, *84*:189-199, 1994) with some modifications. Specifically, a prostate tumor-specific subtracted cDNA library was generated as follows. Normal pancreas cDNA library (70 μg) was digested with EcoRI, NotI, and SfuI, followed by a filling-in reaction with DNA polymerase Klenow fragment. After phenol-chloroform extraction and ethanol precipitation, the DNA was dissolved in 100 μl of H<sub>2</sub>O, heat-denatured and mixed with 100 μl (100 μg) of Photoprobe biotin (Vector Laboratories, Burlingame, CA). As recommended by the manufacturer, the resulting mixture was irradiated with a 270 W sunlamp on ice for 20 minutes. Additional Photoprobe biotin (50 μl) was added and the biotinylation reaction was repeated. After extraction with butanol five times, the DNA was ethanol-precipitated and dissolved in 23 μl H<sub>2</sub>O to form the driver DNA.

To form the tracer DNA, 10 μg prostate tumor cDNA library was digested with BamHI and XhoI, phenol chloroform extracted and passed through Chroma spin-400 columns (Clontech). Following ethanol precipitation, the tracer DNA was dissolved in 5 μl H<sub>2</sub>O. Tracer DNA was mixed with 15 μl driver DNA and 20 μl of 2 x hybridization buffer (1.5 M NaCl/10 mM EDTA/50 mM HEPES pH 7.5/0.2% sodium dodecyl sulfate), overlaid with mineral oil, and heat-denatured completely. The sample was immediately transferred into a 68 °C water bath and incubated for 20 hours (long hybridization [LH]). The reaction mixture was then subjected to a streptavidin treatment followed by phenol/chloroform extraction. This process was repeated three more times. Subtracted DNA was precipitated, dissolved in 12 μl H<sub>2</sub>O, mixed with 8 μl driver DNA and 20 μl of 2 x hybridization buffer, and subjected to a hybridization at 68 °C for 2 hours (short hybridization [SH]). After removal of biotinylated double-stranded DNA, subtracted cDNA was ligated into BamHI/XhoI site of chloramphenicol resistant pBCSK<sup>+</sup> (Stratagene, La Jolla, CA 92037) and transformed into ElectroMax E.

coli DH10B cells by electroporation to generate a prostate tumor specific subtracted cDNA library (referred to as "prostate subtraction 1").

To analyze the subtracted cDNA library, plasmid DNA was prepared from 100 independent clones, randomly picked from the subtracted prostate tumor specific library and grouped based on insert size. Representative cDNA clones were further characterized by DNA sequencing with a Perkin Elmer/Applied Biosystems Division Automated Sequencer Model 373A (Foster City, CA). Six cDNA clones, hereinafter referred to as F1-13, F1-12, F1-16, H1-1, H1-9 and H1-4, were shown to be abundant in the subtracted prostate-specific cDNA library. The determined 3' and 5' cDNA sequences for F1-12 are provided in SEQ ID NO: 2 and 3, respectively, with determined 3' cDNA sequences for F1-13, F1-16, H1-1, H1-9 and H1-4 being provided in SEQ ID NO: 1 and 4-7, respectively.

The cDNA sequences for the isolated clones were compared to known sequences in the gene bank using the EMBL and GenBank databases (release 96). Four of the prostate tumor cDNA clones, F1-13, F1-16, H1-1, and H1-4, were determined to encode the following previously identified proteins: prostate specific antigen (PSA), human glandular kallikrein, human tumor expression enhanced gene, and mitochondria cytochrome C oxidase subunit II. H1-9 was found to be identical to a previously identified human autonomously replicating sequence. No significant homologies to the cDNA sequence for F1-12 were found.

Subsequent studies led to the isolation of a full-length cDNA sequence for F1-12. This sequence is provided in SEQ ID NO: 107, with the corresponding predicted amino acid sequence being provided in SEQ ID NO: 108.

To clone less abundant prostate tumor specific genes, cDNA library subtraction was performed by subtracting the prostate tumor cDNA library described above with the normal pancreas cDNA library and with the three most abundant genes in the previously subtracted prostate tumor specific cDNA library: human glandular kallikrein, prostate specific antigen (PSA), and mitochondria cytochrome C oxidase subunit II. Specifically, 1 µg each of human glandular kallikrein, PSA and mitochondria cytochrome C oxidase subunit II cDNAs in pCDNA3.1 were added to the

driver DNA and subtraction was performed as described above to provide a second subtracted cDNA library hereinafter referred to as the "subtracted prostate tumor specific cDNA library with spike".

Twenty-two cDNA clones were isolated from the subtracted prostate tumor specific cDNA library with spike. The determined 3' and 5' cDNA sequences for the clones referred to as J1-17, L1-12, N1-1862, J1-13, J1-19, J1-25, J1-24, K1-58, K1-63, L1-4 and L1-14 are provided in SEQ ID NOS: 8-9, 10-11, 12-13, 14-15, 16-17, 18-19, 20-21, 22-23, 24-25, 26-27 and 28-29, respectively. The determined 3' cDNA sequences for the clones referred to as J1-12, J1-16, J1-21, K1-48, K1-55, L1-2, L1-6, N1-1858, N1-1860, N1-1861, N1-1864 are provided in SEQ ID NOS: 30-40, respectively. Comparison of these sequences with those in the gene bank as described above, revealed no significant homologies to three of the five most abundant DNA species, (J1-17, L1-12 and N1-1862; SEQ ID NOS: 8-9, 10-11 and 12-13, respectively). Of the remaining two most abundant species, one (J1-12; SEQ ID NO:30) was found to be identical to the previously identified human pulmonary surfactant-associated protein, and the other (K1-48; SEQ ID NO:33) was determined to have some homology to R. norvegicus mRNA for 2-arylpropionyl-CoA epimerase. Of the 17 less abundant cDNA clones isolated from the subtracted prostate tumor specific cDNA library with spike, four (J1-16, K1-55, L1-6 and N1-1864; SEQ ID NOS:31, 34, 36 and 40, respectively) were found to be identical to previously identified sequences, two (J1-21 and N1-1860; SEQ ID NOS: 32 and 38, respectively) were found to show some homology to nonhuman sequences, and two (L1-2 and N1-1861; SEQ ID NOS: 35 and 39, respectively) were found to show some homology to known human sequences. No significant homologies were found to the polypeptides J1-13, J1-19, J1-24, J1-25, K1-58, K1-63, L1-4, L1-14 (SEQ ID NOS: 14-15, 16-17, 20-21, 18-19, 22-23, 24-25, 26-27, 28-29, respectively).

Subsequent studies led to the isolation of full length cDNA sequences for J1-17, L1-12 and N1-1862 (SEQ ID NOS: 109-111, respectively). The corresponding predicted amino acid sequences are provided in SEQ ID NOS: 112-114. L1-12 is also referred to as P501S.

In a further experiment, four additional clones were identified by subtracting a prostate tumor cDNA library with normal prostate cDNA prepared from a pool of three normal prostate poly A+ RNA (referred to as "prostate subtraction 2"). The determined cDNA sequences for these clones, hereinafter referred to as U1-3064, U1-3065, V1-3692 and 1A-3905, are provided in SEQ ID NO: 69-72, respectively. Comparison of the determined sequences with those in the gene bank revealed no significant homologies to U1-3065.

A second subtraction with spike (referred to as "prostate subtraction spike 2") was performed by subtracting a prostate tumor specific cDNA library with spike with normal pancreas cDNA library and further spiked with PSA, J1-17, pulmonary surfactant-associated protein, mitochondrial DNA, cytochrome c oxidase subunit II, N1-1862, autonomously replicating sequence, L1-12 and tumor expression enhanced gene. Four additional clones, hereinafter referred to as V1-3686, R1-2330, 1B-3976 and V1-3679, were isolated. The determined cDNA sequences for these clones are provided in SEQ ID NO:73-76, respectively. Comparison of these sequences with those in the gene bank revealed no significant homologies to V1-3686 and R1-2330.

Further analysis of the three prostate subtractions described above (prostate subtraction 2, subtracted prostate tumor specific cDNA library with spike, and prostate subtraction spike 2) resulted in the identification of sixteen additional clones, referred to as 1G-4736, 1G-4738, 1G-4741, 1G-4744, 1G-4734, 1H-4774, 1H-4781, 1H-4785, 1H-4787, 1H-4796, 1I-4810, 1I-4811, 1J-4876, 1K-4884 and 1K-4896. The determined cDNA sequences for these clones are provided in SEQ ID NOS: 77-92, respectively. Comparison of these sequences with those in the gene bank as described above, revealed no significant homologies to 1G-4741, 1G-4734, 1I-4807, 1J-4876 and 1K-4896 (SEQ ID NOS: 79, 81, 87, 90 and 92, respectively). Further analysis of the isolated clones led to the determination of extended cDNA sequences for 1G-4736, 1G-4738, 1G-4741, 1G-4744, 1H-4774, 1H-4781, 1H-4785, 1H-4787, 1H-4796, 1I-4807, 1J-4876, 1K-4884 and 1K-4896, provided in SEQ ID NOS: 179-188 and 191-193,

respectively, and to the determination of additional partial cDNA sequences for 1I-4810 and 1I-4811, provided in SEQ ID NOS: 189 and 190, respectively.

Additional studies with prostate subtraction spike 2 resulted in the isolation of three more clones. Their sequences were determined as described above and compared to the most recent GenBank. All three clones were found to have homology to known genes, which are Cysteine-rich protein, KIAA0242, and KIAA0280 (SEQ ID NO: 317, 319, and 320, respectively). Further analysis of these clones by Synteni microarray (Synteni, Palo Alto, CA) demonstrated that all three clones were over-expressed in most prostate tumors and prostate BPH, as well as in the majority of normal prostate tissues tested, but low expression in all other normal tissues.

An additional subtraction was performed by subtracting a normal prostate cDNA library with normal pancreas cDNA (referred to as "prostate subtraction 3"). This led to the identification of six additional clones referred to as 1G-4761, 1G-4762, 1H-4766, 1H-4770, 1H-4771 and 1H-4772 (SEQ ID NOS: 93-98). Comparison of these sequences with those in the gene bank revealed no significant homologies to 1G-4761 and 1H-4771 (SEQ ID NOS: 93 and 97, respectively). Further analysis of the isolated clones led to the determination of extended cDNA sequences for 1G-4761, 1G-4762, 1H-4766 and 1H-4772 provided in SEQ ID NOS: 194-196 and 199, respectively, and to the determination of additional partial cDNA sequences for 1H-4770 and 1H-4771, provided in SEQ ID NOS: 197 and 198, respectively.

Subtraction of a prostate tumor cDNA library, prepared from a pool of polyA+ RNA from three prostate cancer patients, with a normal pancreas cDNA library (prostate subtraction 4) led to the identification of eight clones, referred to as 1D-4297, 1D-4309, 1D.1-4278, 1D-4288, 1D-4283, 1D-4304, 1D-4296 and 1D-4280 (SEQ ID NOS: 99-107). These sequences were compared to those in the gene bank as described above. No significant homologies were found to 1D-4283 and 1D-4304 (SEQ ID NOS: 103 and 104, respectively). Further analysis of the isolated clones led to the determination of extended cDNA sequences for 1D-4309, 1D.1-4278, 1D-4288, 1D-4283, 1D-4304, 1D-4296 and 1D-4280, provided in SEQ ID NOS: 200-206, respectively.

cDNA clones isolated in prostate subtraction 1 and prostate subtraction 2, described above, were colony PCR amplified and their mRNA expression levels in prostate tumor, normal prostate and in various other normal tissues were determined using microarray technology (Synteni, Palo Alto, CA). Briefly, the PCR amplification products were dotted onto slides in an array format, with each product occupying a unique location in the array. mRNA was extracted from the tissue sample to be tested. reverse transcribed, and fluorescent-labeled cDNA probes were generated. microarrays were probed with the labeled cDNA probes, the slides scanned and fluorescence intensity was measured. This intensity correlates with the hybridization intensity. Two clones (referred to as P509S and P510S) were found to be overexpressed in prostate tumor and normal prostate and expressed at low levels in all other normal tissues tested (liver, pancreas, skin, bone marrow, brain, breast, adrenal gland, bladder, testes, salivary gland, large intestine, kidney, ovary, lung, spinal cord, skeletal muscle and colon). The determined cDNA sequences for P509S and P510S are provided in SEQ ID NO: 223 and 224, respectively. Comparison of these sequences with those in the gene bank as described above, revealed some homology to previously identified ESTs.

Additional, studies led to the isolation of the full-length cDNA sequence for P509S. This sequence is provided in SEQ ID NO: 332, with the corresponding predicted amino acid sequence being provided in SEQ ID NO: 339.

#### **EXAMPLE 2**

## DETERMINATION OF TISSUE SPECIFICITY OF PROSTATE TUMOR POLYPEPTIDES

Using gene specific primers, mRNA expression levels for the representative prostate tumor polypeptides F1-16, H1-1, J1-17 (also referred to as P502S), L1-12 (also referred to as P501S), F1-12 (also referred to as P504S) and N1-1862 (also referred to as P503S) were examined in a variety of normal and tumor tissues using RT-PCR.

Briefly, total RNA was extracted from a variety of normal and tumor tissues using Trizol reagent as described above. First strand synthesis was carried out using 1-2  $\mu$ g of total RNA with SuperScript II reverse transcriptase (BRL Life Technologies) at 42 °C for one hour. The cDNA was then amplified by PCR with genespecific primers. To ensure the semi-quantitative nature of the RT-PCR,  $\beta$ -actin was used as an internal control for each of the tissues examined. First, serial dilutions of the first strand cDNAs were prepared and RT-PCR assays were performed using  $\beta$ -actin specific primers. A dilution was then chosen that enabled the linear range amplification of the  $\beta$ -actin template and which was sensitive enough to reflect the differences in the initial copy numbers. Using these conditions, the  $\beta$ -actin levels were determined for each reverse transcription reaction from each tissue. DNA contamination was minimized by DNase treatment and by assuring a negative PCR result when using first strand cDNA that was prepared without adding reverse transcriptase.

mRNA Expression levels were examined in four different types of tumor tissue (prostate tumor from 2 patients, breast tumor from 3 patients, colon tumor, lung tumor), and sixteen different normal tissues, including prostate, colon, kidney, liver, lung, ovary, pancreas, skeletal muscle, skin, stomach, testes, bone marrow and brain. F1-16 was found to be expressed at high levels in prostate tumor tissue, colon tumor and normal prostate, and at lower levels in normal liver, skin and testes, with expression being undetectable in the other tissues examined. H1-1 was found to be expressed at high levels in prostate tumor, lung tumor, breast tumor, normal prostate, normal colon and normal brain, at much lower levels in normal lung, pancreas, skeletal muscle, skin, small intestine, bone marrow, and was not detected in the other tissues tested. J1-17 (P502S) and L1-12 (P501S) appear to be specifically over-expressed in prostate, with both genes being expressed at high levels in prostate tumor and normal prostate but at low to undetectable levels in all the other tissues examined. N1-1862 (P503S) was found to be over-expressed in 60% of prostate tumors and detectable in normal colon and kidney. The RT-PCR results thus indicate that F1-16, H1-1, J1-17 (P502S), N1-1862 (P503S) and L1-12 (P501S) are either prostate specific or are expressed at significantly elevated levels in prostate.

Further RT-PCR studies showed that F1-12 (P504S) is over-expressed in 60% of prostate tumors, detectable in normal kidney but not detectable in all other tissues tested. Similarly, R1-2330 was shown to be over-expressed in 40% of prostate tumors, detectable in normal kidney and liver, but not detectable in all other tissues tested. U1-3064 was found to be over-expressed in 60% of prostate tumors, and also expressed in breast and colon tumors, but was not detectable in normal tissues.

RT-PCR characterization of R1-2330, U1-3064 and 1D-4279 showed that these three antigens are over-expressed in prostate and/or prostate tumors.

Northern analysis with four prostate tumors, two normal prostate samples, two BPH prostates, and normal colon, kidney, liver, lung, pancrease, skeletal muscle, brain, stomach, testes, small intestine and bone marrow, showed that L1-12 (P501S) is over-expressed in prostate tumors and normal prostate, while being undetectable in other normal tissues tested. J1-17 (P502S) was detected in two prostate tumors and not in the other tissues tested. N1-1862 (P503S) was found to be over-expressed in three prostate tumors and to be expressed in normal prostate, colon and kidney, but not in other tissues tested. F1-12 (P504S) was found to be highly expressed in two prostate tumors and to be undetectable in all other tissues tested.

The microarray technology described above was used to determine the expression levels of representative antigens described herein in prostate tumor, breast tumor and the following normal tissues: prostate, liver, pancreas, skin, bone marrow, brain, breast, adrenal gland, bladder, testes, salivary gland, large intestine, kidney, ovary, lung, spinal cord, skeletal muscle and colon. L1-12 (P501S) was found to be over-expressed in normal prostate and prostate tumor, with some expression being detected in normal skeletal muscle. Both J1-12 and F1-12 (P504S) were found to be over-expressed in prostate tumor, with expression being lower or undetectable in all other tissues tested. N1-1862 (P503S) was found to be expressed at high levels in prostate tumor and normal prostate, and at low levels in normal large intestine and normal colon, with expression being undetectable in all other tissues tested. R1-2330 was found to be over-expressed in prostate tumor and normal prostate, and to be expressed at lower levels in all other tissues tested. 1D-4279 was found to be over-

expressed in prostate tumor and normal prostate, expressed at lower levels in normal spinal cord, and to be undetectable in all other tissues tested.

Further microarray analysis to specifically address the extent to which P501S (SEQ ID NO: 110) was expressed in breast tumor revealed moderate over-expression not only in breast tumor, but also in metastatic breast tumor (2/31), with negligible to low expression in normal tissues. This data suggests that P501S may be over-expressed in various breast tumors as well as in prostate tumors.

The expression levels of 32 ESTs (expressed sequence tags) described by Vasmatzis et al. (Proc. Natl. Acad. Sci. USA 95:300-304, 1998) in a variety of tumor and normal tissues were examined by microarray technology as described above. Two of these clones (referred to as P1000C and P1001C) were found to be over-expressed in prostate tumor and normal prostate, and expressed at low to undetectable levels in all other tissues tested (normal aorta, thymus, resting and activated PBMC, epithelial cells, spinal cord, adrenal gland, fetal tissues, skin, salivary gland, large intestine, bone marrow, liver, lung, dendritic cells, stomach, lymph nodes, brain, heart, small intestine, skeletal muscle, colon and kidney. The determined cDNA sequences for P1000C and P1001C are provided in SEQ ID NO: 384 and 472, respectively. The sequence of P1001C was found to show some homology to the previously isolated Human mRNA for JM27 protein. No significant homologies were found to the sequence of P1000C.

The expression of the polypeptide encoded by the full length cDNA sequence for F1-12 (also referred to as P504S; SEQ ID NO: 108) was investigated by immunohistochemical analysis. Rabbit-anti-P504S polyclonal antibodies were generated against the full length P504S protein by standard techniques. Subsequent isolation and characterization of the polyclonal antibodies were also performed by techniques well known in the art. Immunohistochemical analysis showed that the P504S polypeptide was expressed in 100% of prostate carcinoma samples tested (n=5).

The rabbit-anti-P504S polyclonal antibody did not appear to label benign prostate cells with the same cytoplasmic granular staining, but rather with light nuclear staining. Analysis of normal tissues revealed that the encoded polypeptide was found to be expressed in some, but not all normal human tissues. Positive

cytoplasmic staining with rabbit-anti-P504S polyclonal antibody was found in normal human kidney, liver, brain, colon and lung-associated macrophages, whereas heart and bone marrow were negative.

This data indicates that the P504S polypeptide is present in prostate cancer tissues, and that there are qualitative and quantitative differences in the staining between benign prostatic hyperplasia tissues and prostate cancer tissues, suggesting that this polypeptide may be detected selectively in prostate tumors and therefore be useful in the diagnosis of prostate cancer.

#### EXAMPLE 3

### ISOLATION AND CHARACTERIZATION OF PROSTATE TUMOR POLYPEPTIDES BY PCR-BASED SUBTRACTION

A cDNA subtraction library, containing cDNA from normal prostate subtracted with ten other normal tissue cDNAs (brain, heart, kidney, liver, lung, ovary, placenta, skeletal muscle, spleen and thymus) and then submitted to a first round of PCR amplification, was purchased from Clontech. This library was subjected to a second round of PCR amplification, following the manufacturer's protocol. The resulting cDNA fragments were subcloned into the vector pT7 Blue T-vector (Novagen, Madison, WI) and transformed into XL-1 Blue MRF' *E. coli* (Stratagene). DNA was isolated from independent clones and sequenced using a Perkin Elmer/Applied Biosystems Division Automated Sequencer Model 373A.

Fifty-nine positive clones were sequenced. Comparison of the DNA sequences of these clones with those in the gene bank, as described above, revealed no significant homologies to 25 of these clones, hereinafter referred to as P5, P8, P9, P18, P20, P30, P34, P36, P38, P39, P42, P49, P50, P53, P55, P60, P64, P65, P73, P75, P76, P79 and P84. The determined cDNA sequences for these clones are provided in SEQ ID NO: 41-45, 47-52 and 54-65, respectively. P29, P47, P68, P80 and P82 (SEQ ID NO: 46, 53 and 66-68, respectively) were found to show some degree of homology to

previously identified DNA sequences. To the best of the inventors' knowledge, none of these sequences have been previously shown to be present in prostate.

Further studies using the PCR-based methodology described above resulted in the isolation of more than 180 additional clones, of which 23 clones were found to show no significant homologies to known sequences. The determined cDNA sequences for these clones are provided in SEQ ID NO: 115-123, 127, 131, 137, 145, 147-151, 153, 156-158 and 160. Twenty-three clones (SEQ ID NO: 124-126, 128-130, 132-136, 138-144, 146, 152, 154, 155 and 159) were found to show some homology to previously identified ESTs. An additional ten clones (SEQ ID NO: 161-170) were found to have some degree of homology to known genes. Larger cDNA clones containing the P20 sequence represent splice variants of a gene referred to as P703P. The determined DNA sequence for the variants referred to as DE1, DE13 and DE14 are provided in SEQ ID NOS: 171, 175 and 177, respectively, with the corresponding predicted amino acid sequences being provided in SEQ ID NO: 172, 176 and 178, respectively. The determined cDNA sequence for an extended spliced form of P703 is provided in SEQ ID NO: 225. The DNA sequences for the splice variants referred to as DE2 and DE6 are provided in SEQ ID NOS: 173 and 174, respectively.

mRNA Expression levels for representative clones in tumor tissues (prostate (n=5), breast (n=2), colon and lung) normal tissues (prostate (n=5), colon, kidney, liver, lung (n=2), ovary (n=2), skeletal muscle, skin, stomach, small intestine and brain), and activated and non-activated PBMC was determined by RT-PCR as described above. Expression was examined in one sample of each tissue type unless otherwise indicated.

P9 was found to be highly expressed in normal prostate and prostate tumor compared to all normal tissues tested except for normal colon which showed comparable expression. P20, a portion of the P703P gene, was found to be highly expressed in normal prostate and prostate tumor, compared to all twelve normal tissues tested. A modest increase in expression of P20 in breast tumor (n=2), colon tumor and lung tumor was seen compared to all normal tissues except lung (1 of 2). Increased expression of P18 was found in normal prostate, prostate tumor and breast tumor

compared to other normal tissues except lung and stomach. A modest increase in expression of P5 was observed in normal prostate compared to most other normal tissues. However, some elevated expression was seen in normal lung and PBMC. Elevated expression of P5 was also observed in prostate tumors (2 of 5), breast tumor and one lung tumor sample. For P30, similar expression levels were seen in normal prostate and prostate tumor, compared to six of twelve other normal tissues tested. Increased expression was seen in breast tumors, one lung tumor sample and one colon tumor sample, and also in normal PBMC. P29 was found to be over-expressed in prostate tumor (5 of 5) and normal prostate (5 of 5) compared to the majority of normal tissues. However, substantial expression of P29 was observed in normal colon and normal lung (2 of 2). P80 was found to be over-expressed in prostate tumor (5 of 5) and normal prostate (5 of 5) compared to all other normal tissues tested, with increased expression also being seen in colon tumor.

Further studies resulted in the isolation of twelve additional clones, hereinafter referred to as 10-d8, 10-h10, 11-c8, 7-g6, 8-b5, 8-b6, 8-d4, 8-d9, 8-g3, 8-h11, 9-f12 and 9-f3. The determined DNA sequences for 10-d8, 10-h10, 11-c8, 8-d4, 8-d9, 8-h11, 9-f12 and 9-f3 are provided in SEQ ID NO: 207, 208, 209, 216, 217, 220, 221 and 222, respectively. The determined forward and reverse DNA sequences for 7-g6, 8-b5, 8-b6 and 8-g3 are provided in SEQ ID NO: 210 and 211; 212 and 213; 214 and 215; and 218 and 219, respectively. Comparison of these sequences with those in the gene bank revealed no significant homologies to the sequence of 9-f3. The clones 10-d8, 11-c8 and 8-h11 were found to show some homology to previously isolated ESTs, while 10-h10, 8-b5, 8-b6, 8-d4, 8-d9, 8-g3 and 9-f12 were found to show some homology to previously identified genes. Further characterization of 7-G6 and 8-G3 showed identity to the known genes PAP and PSA, respectively.

mRNA expression levels for these clones were determined using the micro-array technology described above. The clones 7-G6, 8-G3, 8-B5, 8-B6, 8-D4, 8-D9, 9-F3, 9-F12, 9-H3, 10-A2, 10-A4, 11-C9 and 11-F2 were found to be over-expressed in prostate tumor and normal prostate, with expression in other tissues tested being low or undetectable. Increased expression of 8-F11 was seen in prostate tumor

and normal prostate, bladder, skeletal muscle and colon. Increased expression of 10-H10 was seen in prostate tumor and normal prostate, bladder, lung, colon, brain and large intestine. Increased expression of 9-B1 was seen in prostate tumor, breast tumor, and normal prostate, salivary gland, large intestine and skin, with increased expression of 11-C8 being seen in prostate tumor, and normal prostate and large intestine.

An additional cDNA fragment derived from the PCR-based normal prostate subtraction, described above, was found to be prostate specific by both micro-array technology and RT-PCR. The determined cDNA sequence of this clone (referred to as 9-A11) is provided in SEQ ID NO: 226. Comparison of this sequence with those in the public databases revealed 99% identity to the known gene HOXB13.

Further studies led to the isolation of the clones 8-C6 and 8-H7. The determined cDNA sequences for these clones are provided in SEQ ID NO: 227 and 228, respectively. These sequences were found to show some homology to previously isolated ESTs.

PCR and hybridization-based methodologies were employed to obtain longer cDNA sequences for clone P20 (also referred to as P703P), yielding three additional cDNA fragments that progressively extend the 5' end of the gene. These fragments, referred to as P703PDE5, P703P6.26, and P703PX-23 (SEQ ID NO: 326, 328 and 330, with the predicted corresponding amino acid sequences being provided in SEQ ID NO: 327, 329 and 331, respectively) contain additional 5' sequence. P703PDE5 was recovered by screening of a cDNA library (#141-26) with a portion of P703P as a probe. P703P6.26 was recovered from a mixture of three prostate tumor cDNAs and P703PX 23 was recovered from cDNA library (#438-48). Together, the additional sequences include all of the putative mature serine protease along with part of the putative signal sequence. Further studies using a PCR-based subtraction library of a prostate tumor pool subtracted against a pool of normal tissues (referred to as JP: PCR subtraction) resulted in the isolation of thirteen additional clones, seven of which did not share any significant homology to known GenBank sequences. The determined cDNA sequences for these seven clones (P711P, P712P, novel 23, P774P, P775P, P710P and P768P) are provided in SEQ ID NO: 307-311, 313 and 315, respectively.

The remaining six clones (SEQ ID NO: 316 and 321-325) were shown to share some homology to known genes. By microarray analysis, all thirteen clones showed three or more fold over-expression in prostate tissues, including prostate tumors, BPH and normal prostate as compared to normal non-prostate tissues. Clones P711P, P712P, novel 23 and P768P showed over-expression in most prostate tumors and BPH tissues tested (n=29), and in the majority of normal prostate tissues (n=4), but background to low expression levels in all normal tissues. Clones P774P, P775P and P710P showed comparatively lower expression and expression in fewer prostate tumors and BPH samples, with negative to low expression in normal prostate.

The full-length cDNA for P711P was obtained by employing the partial sequence of SEQ ID NO: 307 to screen a prostate cDNA library. Specifically, a directionally cloned prostate cDNA library was prepared using standard techniques. One million colonies of this library were plated onto LB/Amp plates. Nylon membrane filters were used to lift these colonies, and the cDNAs which were picked up by these filters were denatured and cross-linked to the filters by UV light. The P711P cDNA fragment of SEQ ID NO: 307 was radio-labeled and used to hybridize with these filters. Positive clones were selected, and cDNAs were prepared and sequenced using an automatic Perkin Elmer/Applied Biosystems sequencer. The determined full-length sequence of P711P is provided in SEQ ID NO: 382, with the corresponding predicted amino acid sequence being provided in SEQ ID NO: 383.

Using PCR and hybridization-based methodologies, additional cDNA sequence information was derived for two clones described above, 11-C9 and 9-F3, herein after referred to as P707P and P714P, respectively (SEQ ID NO: 333 and 334). After comparison with the most recent GenBank, P707P was found to be a splice variant of the known gene HoxB13. In contrast, no significant homologies to P714P were found.

Clones 8-B3, P89, P98, P130 and P201 (as disclosed in U.S. Patent Application No. 09/020,956, filed February 9, 1998) were found to be contained within one contiguous sequence, referred to as P705P (SEQ ID NO: 335, with the predicted

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amino acid sequence provided in SEQ ID NO: 336), which was determined to be a splice variant of the known gene NKX 3.1.

## EXAMPLE 4 SYNTHESIS OF POLYPEPTIDES

Polypeptides may be synthesized on a Perkin Elmer/Applied Biosystems 430A peptide synthesizer using FMOC chemistry with HPTU (O-Benzotriazole-N,N,N',N'-tetramethyluronium hexafluorophosphate) activation. A Gly-Cys-Gly sequence may be attached to the amino terminus of the peptide to provide a method of conjugation, binding to an immobilized surface, or labeling of the peptide. Cleavage of the peptides from the solid support may be carried out using the following cleavage mixture: trifluoroacetic acid:ethanedithiol:thioanisole:water:phenol (40:1:2:2:3). After cleaving for 2 hours, the peptides may be precipitated in cold methyl-t-butyl-ether. The peptide pellets may then be dissolved in water containing 0.1% trifluoroacetic acid (TFA) and lyophilized prior to purification by C18 reverse phase HPLC. A gradient of 0%-60% acetonitrile (containing 0.1% TFA) in water (containing 0.1% TFA) may be used to elute the peptides. Following lyophilization of the pure fractions, the peptides may be characterized using electrospray or other types of mass spectrometry and by amino acid analysis.

#### **EXAMPLE 5**

## FURTHER ISOLATION AND CHARACTERIZATION OF PROSTATE TUMOR POLYPEPTIDES BY PCR-BASED SUBTRACTION

A cDNA library generated from prostate primary tumor mRNA as described above was subtracted with cDNA from normal prostate. The subtraction was performed using a PCR-based protocol (Clontech), which was modified to generate larger fragments. Within this protocol, tester and driver double stranded cDNA were

separately digested with five restriction enzymes that recognize six-nucleotide restriction sites (MluI, MscI, PvuII, SalI and StuI). This digestion resulted in an average cDNA size of 600 bp, rather than the average size of 300 bp that results from digestion with RsaI according to the Clontech protocol. This modification did not affect the subtraction efficiency. Two tester populations were then created with different adapters, and the driver library remained without adapters.

The tester and driver libraries were then hybridized using excess driver cDNA. In the first hybridization step, driver was separately hybridized with each of the two tester cDNA populations. This resulted in populations of (a) unhybridized tester cDNAs, (b) tester cDNAs hybridized to other tester cDNAs, (c) tester cDNAs hybridized to driver cDNAs and (d) unhybridized driver cDNAs. The two separate hybridization reactions were then combined, and rehybridized in the presence of additional denatured driver cDNA. Following this second hybridization, in addition to populations (a) through (d), a fifth population (e) was generated in which tester cDNA with one adapter hybridized to tester cDNA with the second adapter. Accordingly, the second hybridization step resulted in enrichment of differentially expressed sequences which could be used as templates for PCR amplification with adaptor-specific primers.

The ends were then filled in, and PCR amplification was performed using adaptor-specific primers. Only population (e), which contained tester cDNA that did not hybridize to driver cDNA, was amplified exponentially. A second PCR amplification step was then performed, to reduce background and further enrich differentially expressed sequences.

This PCR-based subtraction technique normalizes differentially expressed cDNAs so that rare transcripts that are overexpressed in prostate tumor tissue may be recoverable. Such transcripts would be difficult to recover by traditional subtraction methods.

In addition to genes known to be overexpressed in prostate tumor, seventy-seven further clones were identified. Sequences of these partial cDNAs are provided in SEQ ID NO: 29 to 305. Most of these clones had no significant homology to database sequences. Exceptions were JPTPN23 (SEQ ID NO: 231; similarity to pig

valosin-containing protein), JPTPN30 (SEQ ID NO: 234; similarity to rat mRNA for proteasome subunit), JPTPN45 (SEQ ID NO: 243; similarity to rat norvegicus cytosolic NADP-dependent isocitrate dehydrogenase), JPTPN46 (SEQ ID NO: 244; similarity to human subclone H8 4 d4 DNA sequence), JP1D6 (SEQ ID NO: 265; similarity to G. gallus dynein light chain-A), JP8D6 (SEQ ID NO: 288; similarity to human BAC clone RG016J04), JP8F5 (SEQ ID NO: 289; similarity to human subclone H8 3 b5 DNA sequence), and JP8E9 (SEQ ID NO: 299; similarity to human Alu sequence).

Additional studies using the PCR-based subtraction library consisting of a prostate tumor pool subtracted against a normal prostate pool (referred to as PT-PN PCR subtraction) yielded three additional clones. Comparison of the cDNA sequences of these clones with the most recent release of GenBank revealed no significant homologies to the two clones referred to as P715P and P767P (SEQ ID NO: 312 and 314). The remaining clone was found to show some homology to the known gene KIAA0056 (SEQ ID NO: 318). Using microarray analysis to measure mRNA expression levels in various tissues, all three clones were found to be over-expressed in prostate tumors and BPH tissues. Specifically, clone P715P was over-expressed in most prostate tumors and BPH tissues by a factor of three or greater, with elevated expression seen in the majority of normal prostate samples and in fetal tissue, but negative to low expression in all other normal tissues. Clone P767P was over-expressed in several prostate tumors and BPH tissues, with moderate expression levels in half of the normal prostate samples, and background to low expression in all other normal tissues tested.

Further analysis, by microarray as described above, of the PT-PN PCR subtraction library and of a DNA subtraction library containing cDNA from prostate tumor subtracted with a pool of normal tissue cDNAs, led to the isolation of 27 additional clones (SEQ ID NO: 340-365 and 381) which were determined to be over-expressed in prostate tumor. The clones of SEQ ID NO: 341, 342, 345, 347, 348, 349, 351, 355-359, 361, 362 and 364 were also found to be expressed in normal prostate. Expression of all 26 clones in a variety of normal tissues was found to be low or undetectable, with the exception of P544S (SEQ ID NO: 356) which was found to be

expressed in small intestine. Of the 26 clones, 10 (SEQ ID NO: 340-349) were found to show some homology to previously identified sequences. No significant homologies were found to the clones of SEQ ID NO: 350-365.

#### **EXAMPLE 6**

### PEPTIDE PRIMING OF MICE AND PROPAGATION OF CTL LINES

6.1. This Example illustrates the preparation of a CTL cell line specific for cells expressing the P502S gene.

Mice expressing the transgene for human HLA A2.1 (provided by Dr L. Sherman, The Scripps Research Institute, La Jolla, CA) were immunized with P2S#12 peptide (VLGWVAEL; SEQ ID NO: 306), which is derived from the P502S gene (also referred to herein as J1-17, SEQ ID NO: 8), as described by Theobald et al., Proc. Natl. Acad. Sci. USA 92:11993-11997, 1995 with the following modifications. Mice were immunized with 100µg of P2S#12 and 120µg of an I-Ab binding peptide derived from hepatitis B Virus protein emulsified in incomplete Freund's adjuvant. Three weeks later these mice were sacrificed and using a nylon mesh single cell suspensions prepared. Cells were then resuspended at 6 x 10<sup>6</sup> cells/ml in complete media (RPMI-1640; Gibco BRL, Gaithersburg, MD) containing 10% FCS, 2mM Glutamine (Gibco BRL), sodium pyruvate (Gibco BRL), non-essential amino acids (Gibco BRL), 2 x 10<sup>-5</sup> M 2mercaptoethanol, 50U/ml penicillin and streptomycin, and cultured in the presence of irradiated (3000 rads) P2S#12-pulsed (5mg/ml P2S#12 and 10mg/ml β2-microglobulin) LPS blasts (A2 transgenic spleens cells cultured in the presence of 7µg/ml dextran sulfate and 25µg/ml LPS for 3 days). Six days later, cells (5 x 10<sup>5</sup>/ml) were restimulated with 2.5 x 106/ml peptide pulsed irradiated (20,000 rads) EL4A2Kb cells (Sherman et al, Science 258:815-818, 1992) and 3 x 106/ml A2 transgenic spleen feeder cells. Cells were cultured in the presence of 20U/ml IL-2. Cells continued to be restimulated on a weekly basis as described, in preparation for cloning the line.

P2S#12 line was cloned by limiting dilution analysis with peptide pulsed EL4 A2Kb tumor cells (1 x 10<sup>4</sup> cells/ well) as stimulators and A2 transgenic spleen cells

as feeders (5 x 10<sup>5</sup> cells/ well) grown in the presence of 30U/ml IL-2. On day 14, cells were restimulated as before. On day 21, clones that were growing were isolated and maintained in culture. Several of these clones demonstrated significantly higher reactivity (lysis) against human fibroblasts (HLA A2.1 expressing) transduced with P502S than against control fibroblasts. An example is presented in Figure 1.

This data indicates that P2S #12 represents a naturally processed epitope of the P502S protein that is expressed in the context of the human HLA A2.1 molecule.

6.2. This Example illustrates the preparation of murine CTL lines and CTL clones specific for cells expressing the P501S gene.

This series of experiments were performed similarly to that described above. Mice were immunized with the P1S#10 peptide (SEQ ID NO: 337), which is derived from the P501S gene (also referred to herein as L1-12, SEQ ID NO: 110). The P1S#10 peptide was derived by analysis of the predicted polypeptide sequence for P501S for potential HLA-A2 binding sequences as defined by published HLA-A2 binding motifs (Parker, KC, et al, J. Immunol., 152:163, 1994). P1S#10 peptide was synthesized as described in Example 4, and empirically tested for HLA-A2 binding using a T cell based competition assay. Predicted A2 binding peptides were tested for their ability to compete HLA-A2 specific peptide presentation to an HLA-A2 restricted CTL clone (D150M58), which is specific for the HLA-A2 binding influenza matrix peptide fluM58. D150M58 CTL secretes TNF in response to self-presentation of peptide fluM58. In the competition assay, test peptides at 100-200 µg/ml were added to cultures of D150M58 CTL in order to bind HLA-A2 on the CTL. After thirty minutes, CTL cultured with test peptides, or control peptides, were tested for their antigen dose response to the fluM58 peptide in a standard TNF bioassay. As shown in Figure 3, peptide P1S#10 competes HLA-A2 restricted presentation of fluM58, demonstrating that peptide P1S#10 binds HLA-A2.

Mice expressing the transgene for human HLA A2.1 were immunized as described by Theobald et al. (*Proc. Natl. Acad. Sci. USA 92*:11993-11997, 1995) with the following modifications. Mice were immunized with 62.5μg of P1S #10 and 120μg

of an I-A<sup>b</sup> binding peptide derived from Hepatitis B Virus protein emulsified in incomplete Freund's adjuvant. Three weeks later these mice were sacrificed and single cell suspensions prepared using a nylon mesh. Cells were then resuspended at 6 x 10<sup>6</sup> cells/ml in complete media (as described above) and cultured in the presence of irradiated (3000 rads) P1S#10-pulsed (2μg/ml P1S#10 and 10mg/ml β2-microglobulin) LPS blasts (A2 transgenic spleens cells cultured in the presence of 7μg/ml dextran sulfate and 25μg/ml LPS for 3 days). Six days later cells (5 x 10<sup>5</sup>/ml) were restimulated with 2.5 x 10<sup>6</sup>/ml peptide-pulsed irradiated (20,000 rads) EL4A2Kb cells, as described above, and 3 x 10<sup>6</sup>/ml A2 transgenic spleen feeder cells. Cells were cultured in the presence of 20 U/ml IL-2. Cells were restimulated on a weekly basis in preparation for cloning. After three rounds of *in vitro* stimulations, one line was generated that recognized P1S#10-pulsed Jurkat A2Kb targets and P501S-transduced Jurkat targets as shown in Figure 4.

A P1S#10-specific CTL line was cloned by limiting dilution analysis with peptide pulsed EL4 A2Kb tumor cells (1 x 10<sup>4</sup> cells/ well) as stimulators and A2 transgenic spleen cells as feeders (5 x 10<sup>5</sup> cells/ well) grown in the presence of 30U/ml IL-2. On day 14, cells were restimulated as before. On day 21, viable clones were isolated and maintained in culture. As shown in Figure 5, five of these clones demonstrated specific cytolytic reactivity against P501S-transduced Jurkat A2Kb targets. This data indicates that P1S#10 represents a naturally processed epitope of the P501S protein that is expressed in the context of the human HLA-A2.1 molecule.

## EXAMPLE 7 ABILITY OF HUMAN T CELLS TO RECOGNIZE PROSTATE TUMOR POLYPEPTIDES

This Example illustrates the ability of T cells specific for a prostate tumor polypeptide to recognize human tumor.

Human CD8<sup>+</sup> T cells were primed in vitro to the P2S-12 peptide (SEQ ID NO: 306) derived from P502S (also referred to as J1-17) using dendritic cells according to the protocol of Van Tsai et al. (Critical Reviews in Immunology 18:65-75, The resulting CD8+ T cell microcultures were tested for their ability to recognize the P2S-12 peptide presented by autologous fibroblasts or fibroblasts which were transduced to express the P502S gene in a y-interferon ELISPOT assay (see Lalvani et al., J. Exp. Med. 186:859-865, 1997). Briefly, titrating numbers of T cells were assayed in duplicate on  $10^4$  fibroblasts in the presence of 3  $\mu g/ml$  human  $\beta_2$ microglobulin and 1 µg/ml P2S-12 peptide or control E75 peptide. In addition, T cells were simultaneously assayed on autologous fibroblasts transduced with the P502S gene or as a control, fibroblasts transduced with HER-2/neu. Prior to the assay, the fibroblasts were treated with 10 ng/ml γ-interferon for 48 hours to upregulate class I MHC expression. One of the microcultures (#5) demonstrated strong recognition of both peptide pulsed fibroblasts as well as transduced fibroblasts in a γ-interferon ELISPOT assay. Figure 2A demonstrates that there was a strong increase in the number of  $\gamma$ -interferon spots with increasing numbers of T cells on fibroblasts pulsed with the P2S-12 peptide (solid bars) but not with the control E75 peptide (open bars). This shows the ability of these T cells to specifically recognize the P2S-12 peptide. As shown in Figure 2B, this microculture also demonstrated an increase in the number of yinterferon spots with increasing numbers of T cells on fibroblasts transduced to express the P502S gene but not the HER-2/neu gene. These results provide additional confirmatory evidence that the P2S-12 peptide is a naturally processed epitope of the P502S protein. Furthermore, this also demonstrates that there exists in the human T cell repertoire, high affinity T cells which are capable of recognizing this epitope. These T cells should also be capable of recognizing human tumors which express the P502S gene.

### **EXAMPLE 8**

### PRIMING OF CTL *IN VIVO* USING NAKED DNA IMMUNIZATION WITH A PROSTATE ANTIGEN

The prostate tumor antigen L1-12, as described above, is also referred to as P501S. HLA A2Kb Tg mice (provided by Dr L. Sherman, The Scripps Research Institute, La Jolla, CA) were immunized with 100 µg VR10132-P501S either intramuscularly or intradermally. The mice were immunized three times, with a two week interval between immunizations. Two weeks after the last immunization, immune spleen cells were cultured with Jurkat A2Kb-P501S transduced stimulator cells. CTL lines were stimulated weekly. After two weeks of *in vitro* stimulation, CTL activity was assessed against P501S transduced targets. Two out of 8 mice developed strong anti-P501S CTL responses. These results demonstrate that P501S contains at least one naturally processed A2-restricted CTL epitope.

#### **EXAMPLE 9**

### GENERATION OF HUMAN CTL *IN VITRO* USING WHOLE GENE PRIMING AND STIMULATION TECHNIQUES WITH PROSTATE TUMOR ANTIGEN

Using *in vitro* whole-gene priming with P501S-retrovirally transduced autologous fibroblasts (see, for example, Yee et al, *The Journal of Immunology*, 157(9):4079-86, 1996), human CTL lines were derived that specifically recognize autologous fibroblasts transduced with P501S (also known as L1-12), as determined by interferon-γ ELISPOT analysis as described above. Using a panel of HLA-mismatched fibroblast lines transduced with P501S, these CTL lines were shown to be restricted HLA-A2 class I allele. Specifically, dendritic cells (DC) were differentiated from monocyte cultures derived from PBMC of normal human donors by growing for five days in RPMI medium containing 10% human serum, 50 ng/ml human GM-CSF and 30 ng/ml human IL-4. Following culture, DC were infected overnight with recombinant P501S vaccinia virus at a multiplicity of infection (M.O.I) of five, and matured

overnight by the addition of 3 μg/ml CD40 ligand. Virus was inactivated by UV irradiation. CD8+ T cells were isolated using a magnetic bead system, and priming cultures were initiated using standard culture techniques. Cultures were restimulated every 7-10 days using autologous primary fibroblasts retrovirally transduced with P501S. Following four stimulation cycles, CD8+ T cell lines were identified that specifically produced interferon-γ when stimulated with P501S-transduced autologous fibroblasts. The P501S-specific activity could be sustained by the continued stimulation of the cultures with P501S-transduced fibroblasts in the presence of IL-15. A panel of HLA-mismatched fibroblast lines transduced with P501S were generated to define the restriction allele of the response. By measuring interferon-γ in an ELISPOT assay, the P501S specific response was shown to be restricted by HLA-A2. These results demonstrate that a CD8+ CTL response to P501S can be elicited.

### **EXAMPLE 10**

### IDENTIFICATION OF A NATURALLY PROCESSED CTL EPITOPE CONTAINED WITHIN A PROSTATE TUMOR ANTIGEN

The 9-mer peptide p5 (SEQ ID NO: 338) was derived from the P703P antigen (also referred to as P20). The p5 peptide is immunogenic in human HLA-A2 donors and is a naturally processed epitope. Antigen specific CD8+ T cells can be primed following repeated *in vitro* stimulations with monocytes pulsed with p5 peptide. These CTL specifically recognize p5-pulsed target cells in both ELISPOT (as described above) and chromium release assays. Additionally, immunization of HLA-A2 transgenic mice with p5 leads to the generation of CTL lines which recognize a variety of P703P transduced target cells expressing either HLA-A2Kb or HLA-A2. Specifically, HLA-A2 transgenic mice were immunized subcutaneously in the footpad with 100 µg of p5 peptide together with 140 µg of hepatitis B virus core peptide (a Th peptide) in Freund's incomplete adjuvant. Three weeks post immunization, spleen cells from immunized mice were stimulated *in vitro* with peptide-pulsed LPS blasts. CTL activity was assessed by chromium release assay five days after primary *in vitro* 

stimulation. Retrovirally transduced cells expressing the control antigen P703P and HLA-A2Kb were used as targets. CTL lines that specifically recognized both p5-pulsed targets as well as P703P-expressing targets were identified.

Human *in vitro* priming experiments demonstrated that the p5 peptide is immunogenic in humans. Dendritic cells (DC) were differentiated from monocyte cultures derived from PBMC of normal human donors by culturing for five days in RPMI medium containing 10% human serum, 50 ng/ml human GM-CSF and 30 ng/ml human IL-4. Following culture, the DC were pulsed with p5 peptide and cultured with GM-CSF and IL-4 together with CD8+ T cell enriched PBMC. CTL lines were restimulated on a weekly basis with p5-pulsed monocytes. Five to six weeks after initiation of the CTL cultures, CTL recognition of p5-pulsed target cells was demonstrated.

#### EXAMPLE 11

### EXPRESSION OF A BREAST TUMOR-DERIVED ANTIGEN IN PROSTATE

Isolation of the antigen B305D from breast tumor by differential display is described in US Patent Application No. 08/700,014, filed August 20, 1996. Several different splice forms of this antigen were isolated. The determined cDNA sequences for these splice forms are provided in SEQ ID NO: 366-375, with the predicted amino acid sequences corresponding to the sequences of SEQ ID NO: 292, 298 and 301-303 being provided in SEQ ID NO: 299-306, respectively.

The expression levels of B305D in a variety of tumor and normal tissues were examined by real time PCR and by Northern analysis. The results indicated that B305D is highly expressed in breast tumor, prostate tumor, normal prostate tumor and normal testes, with expression being low or undetectable in all other tissues examined (colon tumor, lung tumor, ovary tumor, and normal bone marrow, colon, kidney, liver, lung, ovary, skin, small intestine, stomach).

#### **EXAMPLE 12**

### ELICITATION OF PROSTATE TUMOR ANTIGEN-SPECIFIC CTL RESPONSES IN HUMAN BLOOD

This Example illustrates the ability of a prostate tumor antigen to elicit a CTL response in blood of normal humans.

Autologous dendritic cells (DC) were differentiated from monocyte cultures derived from PBMC of normal donors by growth for five days in RPMI medium containing 10% human serum, 50 ng/ml GMCSF and 30 ng/ml IL-4. Following culture, DC were infected overnight with recombinant P501S-expressing vaccinia virus at an M.O.I. of 5 and matured for 8 hours by the addition of 2 micrograms/ml CD40 ligand. Virus was inactivated by UV irradiation, CD8+ cells were isolated by positive selection using magnetic beads, and priming cultures were initiated in 24-well plates. Following five stimulation cycles, CD8+ lines were identified that specifically produced interferon-gamma when stimulated with autologous P501S-The P501S-specific activity of cell line 3A-1 could be transduced fibroblasts. maintained following additional stimulation cycles on autologous B-LCL transduced with P501S. Line 3A-1 was shown to specifically recognize autologous B-LCL transduced to express P501S, but not EGFP-transduced autologous B-LCL, as measured by cytotoxity assays (51Cr release) and interferon-gamma production (Interferon-gamma Elispot; see above and Lalvani et al., J. Exp. Med. 186:859-865, 1997). The results of these assays are presented in Figures 6A and 6B.

# EXAMPLE 13 IDENTIFICATION OF PROSTATE TUMOR ANTIGENS BY MICROARRAY ANALYSIS

This Example describes the isolation of certain prostate tumor polypeptides from a prostate tumor cDNA library.

A human prostate tumor cDNA expression library as described above was screened using microarray analysis to identify clones that display at least a three fold over-expression in prostate tumor and/or normal prostate tissue, as compared to non-prostate normal tissues (not including testis). 372 clones were identified, and 319 were successfully sequenced. Table I presents a summary of these clones, which are shown in SEQ ID NOs:385-400. Of these sequences SEQ ID NOs:386, 389, 390 and 392 correspond to novel genes, and SEQ ID NOs:393 and 396 correspond to previously identified sequences. The others (SEQ ID NOs:385, 387, 388, 391, 394, 395 and 397-400) correspond to known sequences, as shown in Table I.

Table I
Summary of Prostate Tumor Antigens

Known Genes	Previously identified Genes	Novel Genes
T-cell gamma chain	P504S	23379 (SEQ ID NO:389)
Kallikrein	P1000C	23399 (SEQ ID NO:392)
Vector	P501S	23320 (SEQ ID NO:386)
CGI-82 protein mRNA (23319; SEQ ID NO:385)	P503S	23381 (SEQ ID NO:390)
PSA ,	P510S	
Ald. 6 Dehyd.	P784P	
L-iditol-2 dehydrogenase (23376; SEQ ID NO:388)	P502S	-
Ets transcription factor PDEF (22672; SEQ ID NO:398)	P706P	
hTGR (22678; SEQ ID NO:399)	19142.2, bangur.seq (22621; SEQ ID NO:396)	
KIAA0295(22685; SEQ ID NO:400)	5566.1 Wang(23404; SEQ ID NO:393)	
Prostatic Acid Phosphatase(22655; SEQ ID NO:397)	P712P	
transglutaminase (22611; SEQ ID NO:395)	P778P	
HDLBP (23508; SEQ ID NO:394)		
CGI-69 Protein(23367; SEQ ID NO:387)		
KIAA0122(23383; SEQ ID NO:391)		
TEEG		

CGI-82 showed 4.06 fold over-expression in prostate tissues as

compared to other normal tissues tested. It was over-expressed in 43% of prostate tumors, 25% normal prostate, not detected in other normal tissues tested. L-iditol-2 dehydrogenase showed 4.94 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 90% of prostate tumors, 100% of normal prostate, and not detected in other normal tissues tested. Ets transcription factor PDEF showed 5.55 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 47% prostate tumors, 25% normal prostate and not detected in other normal tissues tested. hTGR1 showed 9.11 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 63% of prostate tumors and is not detected in normal tissues tested including normal prostate. KIAA0295 showed 5.59 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 47% of prostate tumors, low to undetectable in normal tissues tested including normal prostate tissues. Prostatic acid phosphatase showed 9.14 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 67% of prostate tumors, 50% of normal prostate, and not detected in other normal tissues tested. Transglutaminase showed 14.84 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 30% of prostate tumors, 50% of normal prostate, and is not detected in other normal tissues tested. High density lipoprotein binding protein (HDLBP) showed 28.06 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 97% of prostate tumors, 75% of normal prostate, and is undetectable in all other normal tissues tested. CGI-69 showed 3.56 fold over-expression in prostate tissues as compared to other normal tissues tested. It is a low abundant gene, detected in more than 90% of prostate tumors, and in 75% normal prostate tissues. The expression of this gene in normal tissues was very low. KIAA0122 showed 4.24 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 57% of prostate tumors, it was undetectable in all normal tissues tested including normal prostate tissues. 19142.2 bangur showed 23.25 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 97% of prostate tumors and 100% of

normal prostate. It was undetectable in other normal tissues tested. 5566.1 Wang showed 3.31 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 97% of prostate tumors, 75% normal prostate and was also over-expressed in normal bone marrow, pancreas, and activated PBMC. Novel clone 23379 showed 4.86 fold over-expression in prostate tissues as compared to other normal tissues tested. It was detectable in 97% of prostate tumors and 75% normal prostate and is undetectable in all other normal tissues tested. Novel clone 23399 showed 4.09 fold over-expression in prostate tissues as compared to other normal tissues tested. It was over-expressed in 27% of prostate tumors and was undetectable in all normal tissues tested including normal prostate tissues. Novel clone 23320 showed 3.15 fold over-expression in prostate tissues as compared to other normal tissues tested. It was detectable in all prostate tumors and 50% of normal prostate tissues. It was also expressed in normal colon and trachea. Other normal tissues do not express this gene at high level.

# EXAMPLE 14 IDENTIFICATION OF PROSTATE TUMOR ANTIGENS BY ELECTRONIC SUBTRACTION

This Example describes the use of an electronic subtraction technique to identify prostate tumor antigens.

Potential prostate-specific genes present in the GenBank human EST database were identified by electronic subtraction (similar to that described by Vasmatizis et al., *Proc. Natl. Acad. Sci. USA 95*:300-304, 1998). The sequences of EST clones (43,482) derived from various prostate libraries were obtained from the GenBank public human EST database. Each prostate EST sequence was used as a query sequence in a BLASTN (National Center for Biotechnology Information) search against the human EST database. All matches considered identical (length of matching sequence >100 base pairs, density of identical matches over this region > 70%) were grouped

(aligned) together in a cluster. Clusters containing more than 200 ESTs were discarded since they probably represented repetitive elements or highly expressed genes such as those for ribosomal proteins. If two or more clusters shared common ESTs, those clusters were grouped together into a "supercluster," resulting in 4,345 prostate superclusters.

Records for the 479 human cDNA libraries represented in the GenBank release were downloaded to create a database of these cDNA library records. These 479 cDNA libraries were grouped into three groups, Plus (normal prostate and prostate tumor libraries, and breast cell lines, in which expression was desired), Minus (libraries from other normal adult tissues, in which expression was not desirable), and Other (fetal tissue, infant tissue, tissues found only in women, non-prostate tumors and cell lines other than prostate cell lines, in which expression was considered to be irrelevant). A summary of these library groups is presented in Table II.

<u>Table II</u>

<u>Prostate cDNA Libraries and ESTs</u>

Library	# of Libraries	# of ESTs
Plus	25	43,482
Normal	11	18,875
Tumor	11	21,769
Cell lines	3	2,838
Minus	166	
Other	287	

Each supercluster was analyzed in terms of the ESTs within the supercluster. The tissue source of each EST clone was noted and used to classify the superclusters into four groups: Type 1- EST clones found in the Plus group libraries only; no expression detected in Minus or Other group libraries; Type 2- EST clones found in the Plus and Other group libraries only; no expression detected in the Minus group; Type 3- EST clones found in the Plus, Minus and Other group libraries, but the

expression in the Plus group is higher than in either the Minus or Other groups; and Type 4- EST clones found in Plus, Minus and Other group libraries, but the expression in the Plus group is higher than the expression in the Minus group. This analysis identified 4,345 breast clusters (see Table III). From these clusters, 3,172 EST clones were ordered from Research Genetics, Inc., and were received as frozen glycerol stocks in 96-well plates.

<u>Table III</u>
Prostate Cluster Summary

Туре	# of Superclusters	# of ESTs Ordered
1	688	677
2	2899	2484
3	85	11
4	673	0
Total	4345	3172

The inserts were PCR-amplified using amino-linked PCR primers for Synteni microarray analysis. When more than one PCR product was obtained for a particular clone, that PCR product was not used for expression analysis. In total, 2,528 clones from the electronic subtraction method were analyzed by microarray analysis to identify electronic subtraction breast clones that had high tumor vs. normal tissue mRNA. Such screens were performed using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions (and essentially as described by Schena et al., *Proc. Natl. Acad. Sci. USA 93*:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA 94*:2150-2155, 1997). Within these analyses, the clones were arrayed on the chip, which was then probed with fluorescent probes generated from normal and tumor prostate cDNA, as well as various other normal tissues. The slides were scanned and the fluorescence intensity was measured.

Clones with an expression ratio greater than 3 (i.e., the level in prostate tumor cDNA was at least three times the level in normal prostate cDNA) were

identified as prostate tumor-specific sequences (Table IV). The sequences of these clones are provided in SEQ ID NOs:401-453, with certain novel sequences shown in SEQ ID NOs:407, 413, 416-419, 422, 426, 427 and 450.

<u>Table IV</u>

<u>Prostate-tumor Specific Clones</u>

SEQ ID NO.	Sequence	Comments
•	Designation	
401	22545	previously identified P1000C
402	22547	previously identified P704P
403	22548	known
404	22550	known
405	22551	PSA
406	22552	prostate secretory protein 94
407	22553	novel
408	22558	previously identified P509S
409	22562	glandular kallikrein
410	22565	previously identified P1000C
411	22567	PAP
412	22568	B1006C (breast tumor antigen)
413	22570	novel
414	22571	PSA
415	22572	previously identified P706P
416	22573	novel
417	22574	novel
418	22575	novel
419	22580	novel
420	22581	PAP
421	22582	prostatic secretory protein 94
422	22583	novel
423	22584	prostatic secretory protein 94
424	22585	prostatic secretory protein 94
425	22586	known
426	22587	novel
427	22588	novel
428	22589	PAP
429	22590	known
430	22591	PSA
431	22592	known
432	22593	Previously identified P777P

433	22594	T cell receptor gamma chain
434	22595	Previously identified P705P
435	22596	Previously identified P707P
436	22847	PAP
437	22848	known
438	22849	prostatic secretory protein 57
439	22851	PAP
440	22852	PAP
441	22853	PAP
442	22854	previously identified P509S
443	22855	previously identified P705P
444	22856	previously identified P774P
445	22857	PSA
446	23601	previously identified P777P
447	23602	PSA
448	23605	PSA
449	23606	PSA
450	23612	novel
451	23614	PSA
452	23618	previously identified P1000C
453	23622	previously identified P705P

# EXAMPLE 15 FURTHER IDENTIFICATION OF PROSTATE TUMOR ANTIGENS BY MICROARRAY ANALYSIS

This Example describes the isolation of additional prostate tumor polypeptides from a prostate tumor cDNA library.

A human prostate tumor cDNA expression library as described above was screened using microarray analysis to identify clones that display at least a three fold over-expression in prostate tumor and/or normal prostate tissue, as compared to non-prostate normal tissues (not including testis). 142 clones were identified and sequenced. Certain of these clones are shown in SEQ ID NOs:454-467. Of these sequences SEQ ID NOs:459-461 correspond to novel genes. The others (SEQ ID NOs:454-458 and 461-467) correspond to known sequences.

#### **EXAMPLE 16**

### FURTHER CHARACTERIZATION OF PROSTATE TUMOR ANTIGEN P710P

This Example describes the full length cloning of P710P.

The prostate cDNA library described above was screened with the P710P fragment described above. One million colonies were plated on LB/Ampicillin plates. Nylon membrane filters were used to lift these colonies, and the cDNAs picked up by these filters were then denatured and cross-linked to the filters by UV light. The P710P fragment was radiolabeled and used to hybridize with the filters. Positive cDNA clones were selected and their cDNAs recovered and sequenced by an automatic ABI Sequencer. Four sequences were obtained, and are presented in SEQ ID NOs:468-471.

From the foregoing, it will be appreciated that, although specific embodiments of the invention have been described herein for the purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the present invention is not limited except as by the appended claims.

#### **CLAIMS**

- 1. An isolated polypeptide comprising at least an immunogenic portion of a prostate tumor protein, or a variant thereof, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
- (a) sequences recited in any one of SEQ ID NOs:2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471 or 472;
- (b) sequences that hybridize to any of the foregoing sequences under moderately stringent conditions; and
  - (c) complements of any of the sequence of (a) or (b).
- 2. An isolated polypeptide according to claim 1, wherein the polypeptide comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NOs:2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471 or 472, or a complement of any of the foregoing polynucleotide sequences.
- 3. An isolated polypeptide comprising a sequence recited in any one of SEQ ID NO: 108, 112, 113, 114, 172, 176, 178, 327, 329, 331, 339 and 383.
- 4. An isolated polynucleotide encoding at least 15 amino acid residues of a prostate tumor protein, or a variant thereof that differs in one or more

substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide comprising a sequence recited in any one of SEQ ID NOs:2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471 or 472, or a complement of any of the foregoing sequences.

- 5. An isolated polynucleotide encoding a prostate tumor protein, or a variant thereof, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide comprising a sequence recited in any one of SEQ ID NOs:2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471 or 472, or a complement of any of the foregoing sequences.
- 6. An isolated polynucleotide comprising a sequence recited in any one of SEQ ID NOs:2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471 or 472.
- 7. An isolated polynucleotide comprising a sequence that hybridizes, under moderately stringent conditions, to a sequence recited in any one of

SEQ ID NOs:2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471 or 472.

- 8. An isolated polynucleotide complementary to a polynucleotide according to any one of claims 4-7.
- 9. An expression vector comprising a polynucleotide according to any one of claims 4-7.
- 10. A host cell transformed or transfected with an expression vector according to claim 9.
- 11. An expression vector comprising a polynucleotide according claim 8.
- 12. A host cell transformed or transfected with an expression vector according to claim 11.
- 13. A pharmaceutical composition comprising a polypeptide according to claim 1, in combination with a physiologically acceptable carrier.
- 14. A vaccine comprising a polypeptide according to claim 1, in combination with a non-specific immune response enhancer.
- 15. A vaccine according to claim 14, wherein the non-specific immune response enhancer is an adjuvant.

16. A vaccine according to claim 14, wherein the non-specific immune response enhancer induces a predominantly Type I response.

- 17. A pharmaceutical composition comprising a polynucleotide according to claim 4, in combination with a physiologically acceptable carrier.
- 18. A vaccine comprising a polynucleotide according to claim 4, in combination with a non-specific immune response enhancer.
- 19. A vaccine according to claim 18, wherein the non-specific immune response enhancer is an adjuvant.
- 20. A vaccine according to claim 18, wherein the non-specific immune response enhancer induces a predominantly Type I response.
- 21. An isolated antibody, or antigen-binding fragment thereof, that specifically binds to a prostate tumor protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NOs:2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471 or 472 or a complement of any of the foregoing polynucleotide sequences.
- 22. A pharmaceutical composition comprising an antibody or fragment thereof according to claim 18, in combination with a physiologically acceptable carrier.

23. A pharmaceutical composition comprising an antigen-presenting cell that expresses a polypeptide according to claim 1, in combination with a pharmaceutically acceptable carrier or excipient.

- 24. A pharmaceutical composition according to claim 23, wherein the antigen presenting cell is a dendritic cell or a macrophage.
- 25. A vaccine comprising an antigen-presenting cell that expresses a polypeptide according to claim 1, in combination with a non-specific immune response enhancer.
- 26. A vaccine according to claim 25, wherein the non-specific immune response enhancer is an adjuvant.
- 27. A vaccine according to claim 25, wherein the non-specific immune response enhancer induces a predominantly Type I response.
- 28. A vaccine according to claim 25, wherein the antigen-presenting cell is a dendritic cell.
- 29. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a polypeptide according to claim 1, and thereby inhibiting the development of a cancer in the patient.
- 30. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a polynucleotide according to claim 4, and thereby inhibiting the development of a cancer in the patient.
- 31. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of an antibody or antigen-

binding fragment thereof according to claim 21, and thereby inhibiting the development of a cancer in the patient.

- 32. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of an antigen-presenting cell that expresses a polypeptide according to claim 1, and thereby inhibiting the development of a cancer in the patient.
- 33. A method according to claim 32, wherein the antigen-presenting cell is a dendritic cell.
- 34. A method according to any one of claims 29-32, wherein the cancer is prostate cancer.
- 35. A fusion protein comprising at least one polypeptide according to claim 1.
- 36. A fusion protein according to claim 35, wherein the fusion protein comprises an expression enhancer that increases expression of the fusion protein in a host cell transfected with a polynucleotide encoding the fusion protein.
- 37. A fusion protein according to claim 35, wherein the fusion protein comprises a T helper epitope that is not present within the polypeptide of claim 1.
- 38. A fusion protein according to claim 35, wherein the fusion protein comprises an affinity tag.
- 39. An isolated polynucleotide encoding a fusion protein according to claim 35.

40. A pharmaceutical composition comprising a fusion protein according to claim 32, in combination with a physiologically acceptable carrier.

- 41. A vaccine comprising a fusion protein according to claim 35, in combination with a non-specific immune response enhancer.
- 42. A vaccine according to claim 41, wherein the non-specific immune response enhancer is an adjuvant.
- 43. A vaccine according to claim 41, wherein the non-specific immune response enhancer induces a predominantly Type I response.
- 44. A pharmaceutical composition comprising a polynucleotide according to claim 40, in combination with a physiologically acceptable carrier.
- 45. A vaccine comprising a polynucleotide according to claim 40, in combination with a non-specific immune response enhancer.
- 46. A vaccine according to claim 45, wherein the non-specific immune response enhancer is an adjuvant.
- 47. A vaccine according to claim 45, wherein the non-specific immune response enhancer induces a predominantly Type I response.
- 48. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a pharmaceutical composition according to claim 40 or claim 44.

49. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a vaccine according to claim 41 or claim 45.

- 50. A method for removing tumor cells from a biological sample, comprising contacting a biological sample with T cells that specifically react with a prostate tumor protein, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
- (i) polynucleotides recited in any one of SEQ ID NOs:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 or 384-472; and
- (ii) complements of the foregoing polynucleotides;
  wherein the step of contacting is performed under conditions and for a
  time sufficient to permit the removal of cells expressing the prostate tumor protein from
  the sample.
- 51. A method according to claim 50, wherein the biological sample is blood or a fraction thereof.
- 52. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient a biological sample treated according to the method of claim 50.
- 53. A method for stimulating and/or expanding T cells specific for a prostate tumor protein, comprising contacting T cells with one or more of:
  - (i) a polypeptide according to claim 1;
- (ii) a polypeptide encoded by a polynucleotide comprising a sequence provided in any one of SEQ ID NOs:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 or 384-472;
  - (iii) a polynucleotide encoding a polypeptide of (i) or (ii); and/or

- (iv) an antigen presenting cell that expresses a polypeptide of (i) or (ii);
- under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells.
- 54. An isolated T cell population, comprising T cells prepared according to the method of claim 53.
- 55. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a T cell population according to claim 54.
- 56. A method for inhibiting the development of a cancer in a patient, comprising the steps of:
- (a) incubating CD4<sup>+</sup> and/or CD8+ T cells isolated from a patient with at least one component selected from the group consisting of:
  - (i) a polypeptide according to claim 1;
- (ii) a polypeptide encoded by a polynucleotide comprising a sequence of any one of SEQ ID NOs:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 or 384-472;
  - (iii) a polynucleotide encoding a polypeptide of (i) or (ii); or
- (iv) an antigen-presenting cell that expresses a polypeptide of (i) or (ii);

such that T cells proliferate; and

- (b) administering to the patient an effective amount of the proliferated T cells, and thereby inhibiting the development of a cancer in the patient.
- 57. A method for inhibiting the development of a cancer in a patient, comprising the steps of:

(a) incubating CD4<sup>+</sup> and/or CD8+ T cells isolated from a patient with at least one component selected from the group consisting of:

- (i) a polypeptide according to claim 1;
- (ii) a polypeptide encoded by a polynucleotide comprising a sequence of any one of SEQ ID NOs: 1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 or 384-472;
  - (iii) a polynucleotide encoding a polypeptide of (i) or (ii); or
- (iv) an antigen-presenting cell that expresses a polypeptide of (i) or (ii);

such that T cells proliferate;

- (b) cloning at least one proliferated cell; and
- (c) administering to the patient an effective amount of the cloned T cells, and thereby inhibiting the development of a cancer in the patient.
- 58. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:
- (a) contacting a biological sample obtained from a patient with a binding agent that binds to a prostate tumor protein, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
- (i) polynucleotides recited in any one of SEQ ID NOs:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 or 384-472; and
  - (ii) complements of the foregoing polynucleotides;
- (b) detecting in the sample an amount of polypeptide that binds to the binding agent; and
- (c) comparing the amount of polypeptide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

59. A method according to claim 58, wherein the binding agent is an antibody.

- 60. A method according to claim 59, wherein the antibody is a monoclonal antibody.
- 61. A method according to claim 58, wherein the cancer is prostate cancer.
- 62. A method for monitoring the progression of a cancer in a patient, comprising the steps of:
- (a) contacting a biological sample obtained from a patient at a first point in time with a binding agent that binds to a prostate tumor protein, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NOs:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 or 384-472, or a complement of any of the foregoing polynucleotides;
- (b) detecting in the sample an amount of polypeptide that binds to the binding agent;
- (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and
- (d) comparing the amount of polypeptide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.
- 63. A method according to claim 62, wherein the binding agent is an antibody.
- 64. A method according to claim 63, wherein the antibody is a monoclonal antibody.

65. A method according to claim 62, wherein the cancer is a prostate cancer.

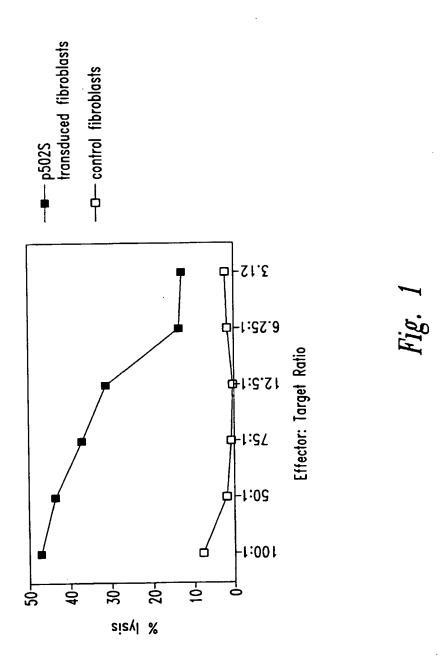
- 66. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:
- (a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a prostate tumor protein, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NOs:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 or 384-472, or a complement of any of the foregoing polynucleotides;
- (b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; and
- (c) comparing the amount of polynucleotide that hybridizes to the oligonucleotide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.
- 67. A method according to claim 66, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.
- 68. A method according to claim 66, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.
- 69. A method for monitoring the progression of a cancer in a patient, comprising the steps of:
- (a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes a prostate tumor

protein, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NOs:1-111, 115-171, 173-175, 177, 179-305, 307-315, 326, 328, 330, 332-335, 340-375, 381, 382 or 384-472, or a complement of any of the foregoing polynucleotides;

- (b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide;
- (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and
- (d) comparing the amount of polynucleotide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.
- 70. A method according to claim 69, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.
- 71. A method according to claim 69, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.
  - 72. A diagnostic kit, comprising:
  - (a) one or more antibodies according to claim 21; and
  - (b) a detection reagent comprising a reporter group.
- 73. A kit according to claim 72, wherein the antibodies are immobilized on a solid support.
- 74. A kit according to claim 73, wherein the solid support comprises nitrocellulose, latex or a plastic material.

75. A kit according to claim 72, wherein the detection reagent comprises an anti-immunoglobulin, protein G, protein A or lectin.

- 76. A kit according to claim 72, wherein the reporter group is selected from the group consisting of radioisotopes, fluorescent groups, luminescent groups, enzymes, biotin and dye particles.
- 77. An oligonucleotide comprising 10 to 40 nucleotides that hybridize under moderately stringent conditions to a polynucleotide that encodes a prostate tumor protein, wherein the tumor protein comprises an amino acid sequence that is encoded by a polynucleotide sequence recited in any one of SEQ ID NOs:2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471 or 472, or a complement of any of the foregoing polynucleotides.
- 78. A oligonucleotide according to claim 77, wherein the oligonucleotide comprises 10-40 nucleotides recited in any one of SEQ ID NOs:2, 3, 8-29, 41-45, 47-52, 54-65, 70, 73-74, 79, 81, 87, 90, 92, 93, 97, 103, 104, 107, 109-111, 115-160, 171, 173-175, 177, 181, 188, 191, 193, 194, 198, 203, 204, 207, 209, 220, 222-225, 227-305, 307-315, 326, 328, 330, 332, 334, 350-365, 381, 382, 384, 386, 389, 390, 392, 393, 396, 401, 402, 407, 408, 410, 413, 415-419, 422, 426, 427, 432, 434, 435, 442-444, 446, 450, 452, 453, 459-461, 468-471 or 472.
  - 79. A diagnostic kit, comprising:
  - (a) an oligonucleotide according to claim 77; and
- (b) a diagnostic reagent for use in a polymerase chain reaction or hybridization assay.



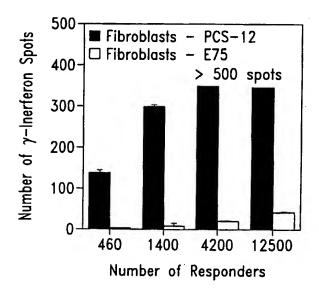


Fig. 2A

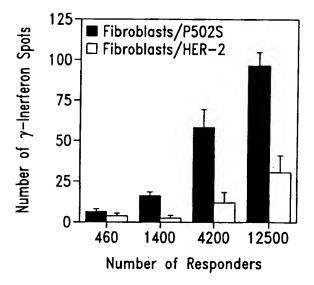
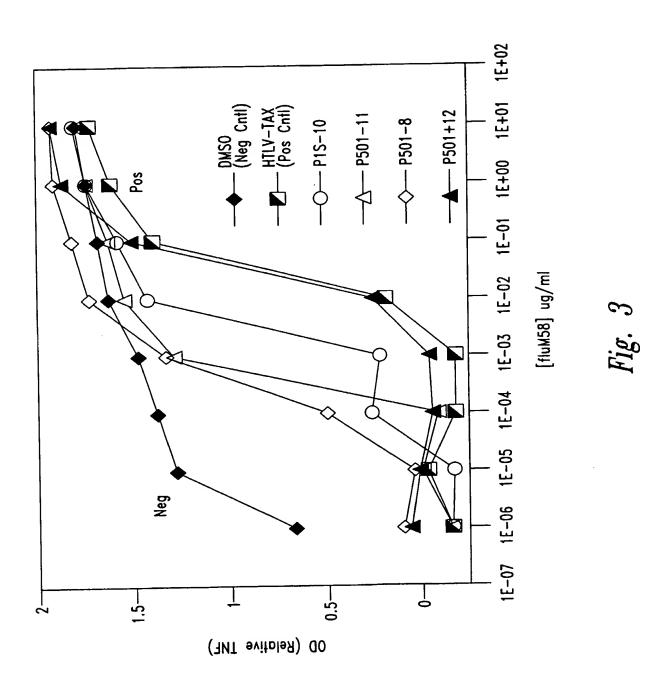
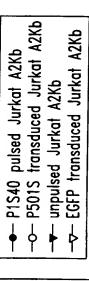


Fig. 2B



SUBSTITUTE SHEET (RULE 26)

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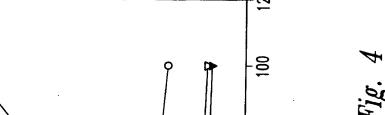
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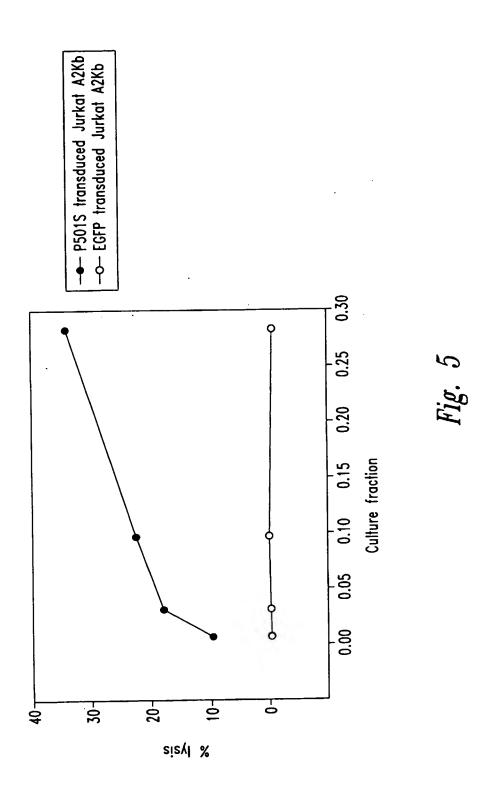


-8

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Effector Target Ratio

Fig. 4



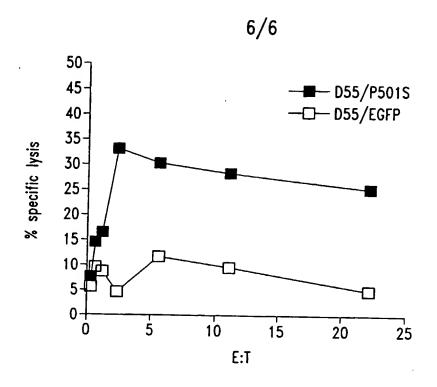
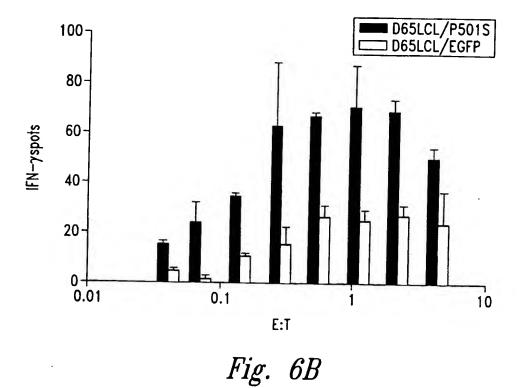


Fig. 6A



SUBSTITUTE SHEET (RULE 26)

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ctccttggct cacagcette tetaggette ccagtgeete caggacagag tgggttatgt
                                                                                      240
tttcagctcc atcettgctg tgagtgtctg gtgcgttgtg cetecagett etgetcagtg ettcatggac agtgtccagc acatgtcact etccaetete tcagtgtgga tecaetagtt
                                                                                      300
                                                                                      360
ctagagegge egecacegeg gtggagetee agettttgtt eeetttagtg agggttaatt
                                                                                      420
gcgcgcttgg cgtaatcatg gtcataactg tttcctgtgt gaaattgtta tccgctcaca attccacaca acatacgagc cggaagcata aagtgtaaag cctggggtgc ctaatgagtg
                                                                                      480
                                                                                      540
anctaactca cattaattgc gttgcgctca ctgnccgctt tccagtcngg aaaactgtcg
                                                                                      600
tgccagctgc attaatgaat cggccaacgc ncggggaaaa gcggtttgcg ttttgggggc tcttccgctt ctcgctcact nantcctgcg ctcggtcntt cggctgcggg gaacggtatc
                                                                                      660
                                                                                      720
actoctoaaa ggnggtatta cggttatcon naaatonggg gataccongg aaaaaanttt
                                                                                      780
                                                                                      814
aacaaaaggg cancaaaggg cngaaacgta aaaa
        <210> 2
        <211> 816
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1) ... (816)
        <223> n = A, T, C or G
        <400> 2
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                                                                                        60
 ttcatggctg ttggagcaat agaaccccag ttctacgagc tgctgatcaa aggacttgga
                                                                                       120
 ctaaagtctg atgaacttcc caatcagatg agcatggatg attggccaga aatgaagaag
                                                                                       180
 aagtttgcag atgtatttgc aaagaagacg aaggcagagt ggtgtcaaat ctttgacggc
                                                                                       240
acagatgcct gtgtgactcc ggttctgact tttgaggagg ttgttcatca tgatcacaac aaggaacggg gctcgtttat caccagtgag gagcaggacg tgagcccccg ccctgcacct ctgctgttaa acaccccagc catcccttct ttcaaaaggg atccactagt tctagaagcg
                                                                                       300
                                                                                       360
                                                                                       420
                                                                                       480
 geogecaecg eggtggaget ceagettttg tteeetttag tgagggttaa ttgegegett
```

```
ggcgtaatca tggtcatagc tgtttcctgt gtgaaattgt tatccgctca caattccccc
  aacatacgag ccggaacata aagtgttaag cctggggtgc ctaatgantg agctaactcn
                                                                                     540
  cattaattgc gttgcgctca ctgcccgctt tccagtcggg aaaactgtcg tgccactgcn
                                                                                     600
                                                                                     660
  ttantgaatc ngccacccc cgggaaaagg cggttgcntt ttgggcctct tccgctttcc
                                                                                    720
  tegetéattg afectngene céggtettég gétgeggnga acggtteact ceteaaagge
                                                                                    780
  ggtntnccgg ttatccccaa acnggggata cccnga
                                                                                    816
         <210> 3
         <211> 773
         <212> DNA
         <213> Homo sapien
         <220>
         <221> misc_feature
         <222> (1) ... (773)
         <223> n = A, T, C or G
        <400> 3
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 tectgetect caetggtgat aaacgageee egtteettgt tgtgateatg atgaacaace
                                                                                     60
 tecteaaaag teagaacegg agteacaeag geatetgtge egteaaagat ttgacaceae tetgeetteg tettetttge aaatacatet geaaacttet tetteatte tggeeaatea tecatgetea tetgattggg aagtteatea gaetttagte cannteettt gateageage
                                                                                    120
                                                                                    180
                                                                                   240
 togtagaact ggggttotat tgctccaaca gccatgaatt ccccatctgc tgtcctgtaa
                                                                                   300
 gtcgtataga aaggtgctcc accatccaac atgttctgtc ctcgaggggg ggcccggtac
                                                                                   360
                                                                                   420
 ccaattcgcc ctatantgag tcgtattacg cgcgctcact ggccgtcgtt ttacaacgtc
 gtgactggga aaaccctggg cgttaccaac ttaatcgcct tgcagcacat ccccctttcg
                                                                                   480
                                                                                   540
 ccagctgggc gtaatancga aaaggcccgc accgatcgcc cttccaacag ttgcgcacct
 gaatgggnaa atgggacccc cctgttaccg cgcattnaac ccccgcnggg tttngttgtt
                                                                                   600
 acceccaent nnacegetta caetttgeca gegeettane geeegeteee ttteneettt
                                                                                   660
 ettecettee ttteneneen ettteeeeeg gggttteeee enteaaeee ena
                                                                                   720
                                                                                   773
        <210> 4
        <211> 828
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc feature
       <222> (1) ... (828)
       <223> n = A, T, C or G
       <400> 4
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aatgggcaga cacaggtgta tgccaatgtt tctgaaatgg gtataatttc gtcctctcct
                                                                                   60
teggaacact ggetgtetet gaagacttet egeteagttt cagtgaggae acacacaaag
                                                                                  120
acgtgggtga ccatgttgtt tgtggggtgc agagatggga ggggtggggc ccaccetgga
                                                                                  180
agagtggaca gtgacacaag gtggacactc tctacagatc actgaggata agctggagcc
                                                                                  240
acaatgcatg aggcacacac acagcaagga tgacnctgta aacatagccc acgctgtcct
                                                                                  300
                                                                                  360
gngggcactg ggaagcctan atnaggccgt gagcanaaag aaggggagga tccactagtt
ctanagegge egecacegeg gtgganetee anettttgtt ecetttagtg agggttaatt
                                                                                  420
                                                                                  480
gegegettigg entaateatg greataneth treetgrigt gaaattigta teegeteaca attecacaca acatacgane eggaaacata aantigtaaac etggggtige taatgantiga
                                                                                  540
ctaactcaca ttaattgcgt tgcgctcact gcccgctttc caatcnggaa acctgtcttg ccncttgcat tnatgaatcn gccaacccc ggggaaaagc gtttgcgtt tgggcgctct tccgcttcct cnctcantta ntccctncnc tcggtcattc cggctgcngc aaaccggttc
                                                                                  600
                                                                                  660
                                                                                  720
acchecteca aagggggtat teeggtttee cenaateegg ggananee
                                                                                  780
                                                                                  828
       <210> 5
       <211> 834
       <212> DNA
       <213> Homo sapien
```

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<220>
      <221> misc feature
      <222> (1)...(834)
      <223> n = A, T, C or G
      <400> 5
ttttttttt tttttactga tagatggaat ttattaagct tttcacatgt gatagcacat
                                                                            60
agttttaatt gcatccaaag tactaacaaa aactctagca atcaagaatg gcagcatgtt
                                                                           120
                                                                           180
attttataac aatcaacacc tgtggctttt aaaatttggt tttcataaga taatttatac
                                                                           240
tgaagtaaat ctagccatgc ttttaaaaaa tgctttaggt cactccaagc ttggcagtta
acatttggca taaacaataa taaaacaatc acaatttaat aaataacaaa tacaacattg
                                                                           300
taggccataa tcatatacag tataaggaaa aggtggtagt gttgagtaag cagttattag
                                                                           360
aatagaatac cttggcctct atgcaaatat gtctagacac tttgattcac tcagccctga
                                                                           420
cattcagttt tcaaagtagg agacaggttc tacagtatca ttttacagtt tccaacacat
                                                                           480
                                                                           540
tgaaaacaag tagaaaatga tgagttgatt tttattaatg cattacatcc tcaagagtta
tcaccaacco ctcagttata aaaaatttto aagttatatt agtcatataa cttggtgtgc
                                                                            600
ttattttaaa ttagtgctaa atggattaag tgaagacaac aatggtcccc taatgtgatt gatattggtc atttttacca gcttctaaat ctnaactttc aggcttttga actggaacat
                                                                            660
                                                                           720
tgnatnacag tgttccanag ttncaaccta ctggaacatt acagtgtgct tgattcaaaa
                                                                           780
                                                                           834
tgttattttg ttaaaaatta aattttaacc tggtggaaaa ataatttgaa atna
       <210> 6
       <211> 818
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (818)
       <223> n = A, T, C or G
       <400> 6
                                                                             60
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aaccacatct acaaaatgcc agtatcaggc ggcggcttcg aagccaaagt gatgtttgga
                                                                            120
tgtaaagtga aatattagtt ggcggatgaa gcagatagtg aggaaagttg agccaataat
                                                                            180
                                                                            240
gacgtgaagt ccgtggaagc ctgtggctac aaaaaatgtt gagccgtaga tgccgtcgga
aatggtgaag ggagactcga agtactctga ggcttgtagg agggtaaaat agagacccag
                                                                            300
taaaattgta ataagcagtg cttgaattat ttggtttcgg ttgttttcta ttagactatg
                                                                            360
gtgageteag gtgattgata eteetgatge gagtaataeg gatgtgttta ggagtgggae
                                                                            420
ttctagggga tttagcgggg tgatgcctgt tgggggccag tgccctccta gttggggggt agggggctagg ctggagtggt aaaaggctca gaaaaatcct gcgaagaaaa aaacttctga
                                                                            480
                                                                            540
                                                                            600
ggtaataaat aggattatcc cgtatcgaag gcctttttgg acaggtggtg tgtggtggcc
tiggtatgtg cittctcgtg tiacatcgcg ccatcattgg tataiggita gigigtiggg
                                                                            660
ttantanggo ctantatgaa gaacttttgg antggaatta aatcaatngo ttggccggaa
                                                                            720
 gtcattanga nggctnaaaa ggccctgtta ngggtctggg ctnggttta cccnacccat
                                                                            780
                                                                            818
 ggaatnenee eeceggacna ntgnateeet attettaa
       <210> 7
       <211> 817
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(817)
        <223> n = A, T, C or G
       <400> 7
 ttttttttt tttttttt tggctctaga gggggtagag ggggtgctat agggtaaata
                                                                             60
                                                                             120
 cgggccctat ttcaaagatt tttaggggaa ttaattctag gacgatgggt atgaaactgt
 ggtttgetee acagatttea gageattgae egtagtatae eeeeggtegt gtageggtga
                                                                             180
```

```
aagtggtttg gtttagacgt ccgggaattg catctgtttt taagcctaat gtggggacag
                                                                           240
 ctcatgagtg caagacgtct tgtgatgtaa ttattatacn aatgggggct tcaatcggga
                                                                           300
 gtactactcg attgtcaacg tcaaggagtc gcaggtcgcc tggttctagg aataatgggg
                                                                           360
 gaagtatgta ggaattgaag attaatccgc cgtagtcggt gttctcctag gttcaatacc
                                                                           420
 attggtggcc aattgatttg atggtaaggg gagggatcgt tgaactcgtc tgttatgtaa
                                                                           480
 aggatneett ngggatggga aggenatnaa ggaetangga tnaatggegg geangatatt
                                                                           540
 tcaaacngtc tctanttcct gaaacgtctg aaatgttaat aanaattaan tttngttatt gaatnttnng gaaaagggct tacaggacta gaaaccaaat angaaaanta atnntaangg
                                                                           600
                                                                           660
 cnttatentn aaaggtnata accnetecta tnateceace caatngnatt ecceaenenn
                                                                          720
 acnattggat necessantte canaaangge encessegg tgnanneens ettttgttes
                                                                          780
 cttnantgan ggttattene ecetngentt ateance
                                                                          817
        <210> 8
       <211> 799
        <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(799)
       <223> n = A, T, C or G
       <400> 8
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                                                                           60
 cataaggaga actttctgct ggcacgcgct agggacaagc gggagagcga ctccgagcgt
                                                                          120
 ctgaagcgca cgtcccagaa ggtggacttg gcactgaaac agctgggaca catccgcgag
                                                                          180
 tacgaacage geetgaaagt getggagegg gaggteeage agtgtageeg egteetgggg
                                                                          240
 tgggtggccg angectgane egetetgeet tgetgeece angtgggeeg ecaececetg
                                                                          300
 acctgcctgg gtccaaacac tgagccctgc tggcggactt caagganaac ccccacangg
                                                                          360
 ggattttgct cctanantaa ggctcatctg ggcctcggcc cccccacctg gttggccttg
                                                                          420
 tetttgangt gagececatg tecatetggg ceaetgteng gaceaeettt ngggagtgtt
                                                                          480
 ctccttacaa ccacannatg cccggctcct cccggaaacc anteccance tgngaaggat
                                                                          540
 caagneetgn atccactnnt netanaaceg geeneeneeg engtggaace encettntgt
                                                                          600
teettttent tnagggttaa tnnegeettg geettneean ngteetnene ntttteennt
                                                                          660
gttnaaattg ttangeneee neennteeen ennennenan eeegaeeenn annttnnann
                                                                          720
ncctgggggt nccnncngat tgaccennce nccctntant tgcnttnggg nncnntgccc
                                                                          780
ctttccctct nggganncg
                                                                          799
       <210> 9
       <211> 801
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (801)
       <223> n = A,T,C or G
       <400> 9
acgeettgat ecteccagge tgggaetggt tetgggagga geegggeatg etgtggtttg
                                                                          60
taangatgac actcccaaag gtggtcctga cagtggccca gatggacatg gggctcacct
                                                                         120
caaggacaag gccaccaggt gcgggggccg aagcccacat gatccttact ctatgagcaa
                                                                         180
aatcccctgt gggggcttct ccttgaagtc cgccancagg gctcagtctt tggacccang
                                                                         240
caggicatgg ggttgtngnc caactggggg ccncaacgca aaanggcnca gggcctcngn
                                                                         300
cacccatece angaegegge tacactnetg gacetecene tecaccaett teatgegetg
                                                                         360
ttentacceg egnathigie ceancigtit engigeenae tecancitet nggaegigeg
                                                                         420
ctacatacgo coggantono notocogott tgicoctato cacginocan caacaaatti
                                                                         480
encentantg cacenattee caentttnne agnttteene nnegngette ettntaaaag
                                                                         540
ggttganccc cggaaaatnc cccaaagggg gggggccngg tacccaactn ccccctnata
                                                                         600
gctgaantce ccatnacenn gnetenatgg ancenteent tttaannach ttetnaactt
                                                                         660
gggaanance etegneentn ecceenttaa teceneettg enangment ecceenntee
                                                                         720
necennntng gentntnann enaaaagge eennnaneaa teteetnnen eeteantteg
                                                                         780
```

```
801
ccancecteg aaateggeen e
      <210> 10
      <211> 789
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1) ... (789)
      <223> n = A, T, C or G
      <400> 10
cagtetaint ggccagtgtg gcagetttee etgtggetge eggtgeeaca tgeetgteee
                                                                         60
acagtgtggc cgtggtgaca gcttcagccg ccctcaccgg gttcaccttc tcagccctgc
                                                                        120
agatectgee ctacacactg geeteetet accaceggga gaageaggtg tteetgeeca
                                                                        180
aataccgagg ggacactgga ggtgctagca gtgaggacag cctgatgacc agcttcctgc
                                                                        240
                                                                        300
caggoctaa gootggaget coottoocta atggacacgt gggtgctgga ggcagtggcc
tgctcccacc tccacccgcg ctctgcgggg cctctgcctg tgatgtctcc gtacgtgtgg
                                                                        360·
tggtgggtga gcccaccgan gccagggtgg ttccgggccg gggcatctgc ctggacctcg
                                                                        420
ccatcctgga tagtgcttcc tgctgtccca ngtggcccca tccctgttta tgggctccat
                                                                        480
tgtccagctc agccagtctg tcactgccta tatggtgtct gccgcaggcc tgggtctggt
                                                                        540
cccatttact tigctacaca ggtantattt gacaagaacg antiggccaa atactcageg
                                                                        600
                                                                        660
ttaaaaaatt ccagcaacat tgggggtgga aggcctgcct cactgggtcc aactccccgc
tectgttaac eccatgggge tgeeggettg geeggeaatt tetgttgetg ecaaantnat
                                                                        720
gtggetetet getgeeacet gttgetgget gaagtgenta engeneanet nggggggtng
                                                                        780
                                                                        789
ggngttccc
      <210> 11
      <211> 772
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (772)
       <223> n = A, T, C or G
       <400> 11
cccaccctac ccaaatatta gacaccaaca cagaaaagct agcaatggat tcccttctac
                                                                         60
tttgttaaat aaataagtta aatatttaaa tgcctgtgtc tctgtgatgg caacagaagg
                                                                        120
 accaacagge cacateetga taaaaggtaa gaggggggtg gateageaaa aagacagtge
                                                                        180
 tgtgggctga ggggacctgg ttcttgtgtg ttgcccctca ggactcttcc cctacaaata
                                                                        240
 actiticatat gitcaaatce catggaggag tgtttcatce tagaaactce catgcaagag
                                                                        300
 ctacattaaa cgaagctgca ggttaagggg cttanagatg ggaaaccagg tgactgagtt
                                                                        360
 tattcagctc ccaaaaaccc ttctctaggt gtgtctcaac taggaggcta gctgttaacc
                                                                        420
 ctgagectgg gtaatccacc tgcagagtcc ccgcattcca gtgcatggaa cccttctggc
                                                                        480
 ctccctgtat aagtccagac tgaaaccccc ttggaaggnc tccagtcagg cagccctana
                                                                        540
                                                                        600
 aactggggaa aaaagaaaag gacgccccan cccccagctg tgcanctacg cacctcaaca
 gcacagggtg gcagcaaaaa aaccacttta ctttggcaca aacaaaact ngggggggca
                                                                        660
 accccggcac cccnangggg gttaacagga ancngggnaa cntggaaccc aattnaggca
                                                                        720
                                                                        772
 ggcccnccac cccnaatntt gctgggaaat ttttcctccc ctaaattntt tc
       <210> 12
       <211> 751
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(751)
       <223> n = A, T, C or G
```

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<400> 12
 geceeaatte cagetgecae accaeccaeg gtgactgeat tagtteggat gteatacaaa
                                                                              60
 agetgattga ageaaccete tactttttgg tegtgageet tttgettggt geaggtttea
 ttggctgtgt tggtgacgtt gtcattgcaa cagaatgggg gaaaggcact gttctctttg
                                                                             120
                                                                             180
 aagtanggtg agtcctcaaa atccgtatag ttggtgaagc cacagcactt gagccctttc
                                                                             240
 atggtggtgt tccacacttg agtgaagtct tcctgggaac cataatcttt cttgatggca
                                                                             300
 ggcactacca gcaacgtcag ggaagtgctc agccattgtg gtgtacacca aggcgaccac agcagctgcn acctcagcaa tgaagatgan gaggangatg aagaagaacg tcncgagggc
                                                                             360
                                                                             420
 acacttgete teagtettan caccatanea gecentgaaa accaananea aagaceaena
                                                                             480
 eneeggetge gatgaagaaa tnacceeneg ttgacaaact tgcatggcac tggganccac
                                                                             540
 agtggcccna aaaatcttca aaaaggatgc cccatcnatt gaccccccaa atgcccactg
                                                                             600
 ccaacagggg ctgcccacn enennaacga tgancenatt gnacaagate tnentggtet
 tnatnaacht gaaccetgen tngtggetee tgtteaggne ennggeetga ettetnaann
                                                                             660
                                                                             720
 aangaacton gaagnoocca enggananne g
                                                                             751
        <210> 13
        <211> 729
        <212> DNA
        <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(729)
       <223> n = A, T, C or G
       <400> 13
 gagecaggeg teeetetgee tgeecactea gtggeaacae eegggagetg ttttgteett
                                                                             60
 tgtggancet cagcagtnee etettteaga acteantgee aaganceetg aacaggagee
                                                                            120
 accatgcagt gcttcagctt cattaagacc atgatgatcc tcttcaattt gctcatcttt
 ctgtgtggtg cagccctgtt ggcagtgggc atctgggtgt caatcgatgg ggcatccttt
                                                                            180
 ctgaagatet tegggecaet gtegtecagt gecatgeagt ttgteaacgt gggetaette
                                                                            240
                                                                            300
 ctcatcgcag ccggcgttgt ggtcttagct ctaggtttcc tgggctgcta tggtgctaag
                                                                            360
 actgagagca agtgtgccct cgtgacgttc ttcttcatcc tcctcctcat cttcattgct
                                                                            420
gaggttgcaa tgctgtggtc gccttggtgt acaccacaat ggctgagcac ttcctgacgt
                                                                            480
tgctggtaat gcctgccate aanaaagat tatgggttcc caggaanact tcactcaagt
                                                                            540
gttggaacac caccatgaaa gggctcaagt gctgtggctt cnnccaacta tacggatttt
                                                                            600
gaagantcac ctacttcaaa gaaaanagtg cctttccccc atttctgttg caattgacaa
acgtccccaa cacagccaat tgaaaacctg cacccaaccc aaangggtcc ccaaccanaa
                                                                            660
                                                                           720
attnaaggg
                                                                           729
       <210> 14
       <211> 816
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (816)
       <223> n = A, T, C or G
      <400> 14
tgctcttcct caaagttgtt cttgttgcca taacaaccac cataggtaaa gcgggcgcag
                                                                            60
tgttcgctga aggggttgta gtaccagcgc gggatgctct ccttgcagag tcctgtgtct
                                                                           120
ggcaggtcca cgcagtgccc tttgtcactg gggaaatgga tgcgctggag ctcgtcaaag
                                                                           180
ccactcgtgt atttttcaca ggcagcctcg tccgacgcgt cggggcagtt gggggtgtct
                                                                           240
tcacactcca ggaaactgte natgcagcag ccattgctgc agcggaactg ggtgggctga cangtgccag agcacactgg atggcgcctt tccatgnnan gggccctgng ggaaagtccc
                                                                           300
                                                                           360
tganceccan anetgeetet caaangeece acettgeaca eccegacagg ctagaatgga
                                                                           420
atettettee egaaaggtag tinttettgt tgeecaance ancecentaa acaaactett
                                                                           480
gcanatctgc tccgnggggg tcntantacc ancgtgggaa aagaacccca ggcngcgaac
caanettgtt tggatnegaa genataatet netnttetge ttggtggaca geaceantna
                                                                           540
```

```
ctgtnnanct ttagncentg gtcctcntgg gttgnncttg aacctaaten cenntcaact
                                                                          660
                                                                          720
gggacaaggt aaningcent cettinaati ceenanenin ceeeetggtt tggggtttin
                                                                          780
cnenetecta ecceagaaan neegtgttee ecceaacta ggggeenaaa cenntintte
                                                                          816
cacaacctn ccccacccac gggttcngnt ggttng
      <210> 15
      <211> 783
      <212> DNA
      <213> Homo sapien
      <221> misc_feature
      <222> (1)...(783)
      <223> n = A, T, C or G
      <400> 15
                                                                           60
ccaaggeetg ggeaggeata nacttgaagg tacaacccca ggaacccctg gtgctgaagg
atgtggaaaa cacagattgg cgcctactgc ggggtgacac ggatgtcagg gtagagaga
                                                                          120
                                                                          180
aagacccaaa ccaggtggaa ctgtggggac tcaaggaang cacctacctg ttccagctga
cagtgactag etcagaccae ccagaggaca eggecaaegt cacagteact gtgetgteca
                                                                          240
                                                                          300
ccaagcagac agaagactac tgcctcgcat ccaacaangt gggtcgctgc cggggctctt
                                                                          360
teccaegetg gtactatgae eccaeggage agatetgeaa gagtttegtt tatggagget
gettgggcaa caagaacaac tacetteggg aagaagagtg cattetance tgtengggtg
                                                                          420
tgcaaggtgg gcctttgana ngcanctctg gggctcangc gactttcccc cagggcccct
                                                                          480
                                                                          540
ccatggaaag gcgccatcca ntgttctctg gcacctgtca gcccacccag ttccgctgca
                                                                          600
ncaatggctg ctgcatchac antttcctng aattgtgaca acacccccca ntgcccccaa
ccctcccaac aaagcttccc tgttnaaaaa tacnccantt ggcttttnac aaacncccgg
                                                                          660
enceteentt tteecenntn aacaaaggge netngenttt gaactgeeen aaceenggaa
                                                                          720
tetneenngg aaaaantnee ceeeetggtt cetnnaance ceteenenaa anetneeeee
                                                                          780
                                                                          783
CCC
       <210> 16
       <211> 801
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (801)
       <223> n = A, T, C or G
       <400> 16
                                                                           60
 gccccaattc cagctgccac accacccacg gtgactgcat tagttcggat gtcatacaaa
 agctgattga agcaacecte tactttttgg tegtgageet tttgettggt geaggtttea
                                                                          120
 ttggctgtgt tggtgacgtt gtcattgcaa cagaatgggg gaaaggcact gttctctttg
                                                                          180
aagtagggtg agteeteaaa ateegtatag ttggtgaage cacageaett gageeettte atggtggtgt tecacaettg agtgaagtet teetgggaae cataatettt ettgatggea
                                                                          240
                                                                          300
 ggcactacca gcaacgtcag gaagtgctca gccattgtgg tgtacaccaa ggcgaccaca
                                                                          360
                                                                          420
 gcagctgcaa cctcagcaat gaagatgagg aggaggatga agaagaacgt cncgagggca
 cacttgetet eegtettage accatageag eccangaaae caagageaaa gaccacaaeg
                                                                          480
 congotgoga atgaaagaaa ntacccacgt tgacaaactg catggccact ggacgacagt
                                                                          540
 tggcccgaan atcttcagaa aagggatgcc ccatcgattg aacacccana tgcccactgc
                                                                          600
 cnacaggget geneenenen gaaagaatga gecattgaag aaggatente ntggtettaa
                                                                          660
 tgaactgaaa contgoatgg tggcccctgt tcagggctct tggcagtgaa ttctganaaa
                                                                          720
 aaggaacngc ntnagccccc ccaaangana aaacaccccc gggtgttgcc ctgaattggc
                                                                          780
                                                                          801
 ggccaaggan ccctgccccn g
       <210> 17
       <211> 740
       <212> DNA
       <213> Homo sapien
```

```
<220>
      <221> misc feature
       <222> (1)...(740)
       <223> n = A, T, C or G
      <400> 17
gtgagageca ggegteeete tgeetgeeca eteagtggea acaeeeggga getgttttgt
                                                                         60
cettigigga geeteageag ticeetetti cagaacteae tgeeaagage cetgaacagg
                                                                        120
agccaccatg cagtgcttca gcttcattaa gaccatgatg atcctcttca atttgctcat
                                                                        180
ctttctgtgt ggtgcagccc tgttggcagt gggcatctgg gtgtcaatcg atggggcatc
                                                                        240
ctttctgaag atcttcgggc cactgtcgtc cagtgccatg cagtttgtca acgtgggcta
                                                                        300
ettecteate geageeggeg ttgtggtett tgetettggt tteetggget getatggtge
                                                                        360
taagacggag agcaagtgtg ccctcgtgac gttcttcttc atcctcctcc tcatcttcat
                                                                        420
tgctgaagtt gcagctgctg tggtcgcctt ggtgtacacc acaatggctg aaccattcct
                                                                        480
gacgttgctg gtantgcctg ccatcaanaa agattatggg ttcccaggaa aaattcactc
                                                                        540
aantntggaa caccnccatg aaaagggctc caatttctgn tggcttcccc aactataccg
                                                                        600
gaattttgaa aganteneee taetteeaaa aaaaaanant tgeetttnee eeenttetgt
                                                                        660
tgcaatgaaa acntcccaan acngccaatn aaaacctgcc cnnncaaaaa ggntcncaaa
                                                                        720
caaaaaaant nnaagggttn
                                                                        740
      <210> 18
      <211> 802
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (802)
      <223> n = A,T,C or G
      <400> 18
ccgctggttg cgctggtcca gngnagccac gaagcacgtc agcatacaca gcctcaatca
                                                                        60
caaggiette cagetgeege acattaegea gggcaagage etecageaac actgcatatg
                                                                       120
ggatacactt tactttagca gccagggtga caactgagag gtgtcgaagc ttattcttct
                                                                       180
gagcctctgt tagtggagga agattccggg cttcagctaa gtagtcagcg tatgtcccat
                                                                       240
aagcaaacac tgtgagcagc cggaaggtag aggcaaagtc actctcagcc agctctctaa
                                                                       300
cattgggcat gtccagcagt tctccaaaca cgtagacacc agnggcctcc agcacctgat
                                                                       360
ggatgagtgt ggccagcgct gccccttgg ccgacttggc taggagcaga aattgctcct
                                                                       420
ggttctgccc tgtcaccttc acttccgcac tcatcactgc actgagtgtg ggggacttgg
                                                                       480
geteaggatg tecagagaeg tggtteegee cectenetta atgacaeegn ceanneaace
                                                                       540
gtcggctccc gccgantgng ttcgtcgtnc ctgggtcagg gtctgctggc cnctacttgc
                                                                       600
aancttegte nggeeeatgg aatteacene aceggaactn gtangateea etnnttetat
                                                                       660
aaccggncgc caccgcnnnt ggaactccac tcttnttncc tttacttgag ggttaaggtc
                                                                       720
accettnneg ttacettggt ccaaacentn centgtgteg anatngtnaa tenggneena
                                                                       780
tnccancene atangaagee ng
                                                                       802
      <210> 19
      <211> 731
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(731)
      <223> n = A, T, C or G
      <400> 19
cnaagettee aggtnaeggg cegenaanee tgaceenagg tancanaang cagnengegg
                                                                        60
gageceaeeg teaegnggng gngtetttat nggaggggge ggagecaeat enetggaent
                                                                       120
entgacecca acteccence neneantgea gtgatgagtg cagaactgaa ggtnacgtgg
                                                                       180
caggaaccaa gancaaanne tgeteennte caagteggen nagggggegg ggetggecae
                                                                       240
geneateent enagtgetgn aaageeeenn eetgtetaet tgtttggaga aengennnga
                                                                       300
```

```
catgcccagn gttanataac nggcngagag tnantttgcc tetecettcc ggctgcgcan
                                                                         360
                                                                         420
cgngtntgct tagnggacat aacctgacta cttaactgaa cccnngaatc tnccncccct
                                                                         480
ccactaaget cagaacaaaa aacttegaca ccacteantt gteacetgne tgeteaagta
aagtgtaccc catneccaat gtntgctnga ngctctgncc tgcnttangt tcggtcctgg
                                                                         540
                                                                         600
gaagacctat caattnaagc tatgittetg actgeetett geteeetgna acaanenace
cnncnntcca aggggggnc ggcccccaat ccccccaacc ntnaattnan tttancccen
                                                                         660
eccenggee eggeetttta enanentenn nnaengggna aaacennnge tttneccaae
                                                                         720
                                                                         731
nnaatccncc t
      <210> 20
      <211> 754
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(754)
      <223> n = A, T, C or G
      <400> 20
ttttttttt tttttttt taaaaacccc ctccattnaa tgnaaacttc cgaaattgtc
                                                                           60
caacccctc ntccaaatnn contttccgg gngggggttc caaacccaan ttanntttgg
                                                                         120
annttaaatt aaatnttnnt tggnggnnna anccnaatgt nangaaagtt naacccanta
                                                                          180
tnancttnaa tneetggaaa cengingnit ecaaaaatni ttaaceetta anteeeteeg
                                                                         240
aaatngttna nggaaaaccc aanttctcnt aaggttgttt gaaggntnaa tnaaaanccc
                                                                         300
nnccaattgt tittngccac gcctgaatta attggnttcc gntgttttcc nttaaaanaa
                                                                          360
ggnnancece ggttantnaa teececenne eccaattata eeganttttt ttngaattgg
                                                                          420
ganccenegg gaattaacgg ggnnnntece tnttgggggg enggnneece eccenteggg ggttngggne aggnennaat tgtttaaggg teegaaaaat eceteenaga aaaaaanete
                                                                          480
                                                                          540
ccaggntgag nntngggttt ncccccccc canggcccct ctcgnanagt tggggtttgg
                                                                          600
ggggcctggg atttintttc ccctnttncc tccccccc ccnggganag aggtingngt
                                                                          660
tttgntcnnc ggccccnccn aaganctttn ccganttnan ttaaatccnt gcctnggcga
                                                                          720
                                                                          754
agtccnttgn agggntaaan ggccccctnn cggg
      <210> 21
<211> 755
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (755)
       <223> n = A, T, C or G
atcancccat gaccccnaac nngggacene teanceggne nnnenacene eggeenatea
                                                                           60
                                                                          120
 nngtnagnne actnennttn nateaeneee encenaetae gecenenane enaegeneta
 nncanatnee actganngeg egangtngan ngagaaanet nataccanag neaccanaen
                                                                          180
 ccagctgtcc nanaangcct nnnatacngg nnnatccaat ntgnancctc cnaagtattn
                                                                          240
 nnenneanat gatttteetn anecgattae centneecce taneccetee eccecaacna
                                                                          300
 cgaaggenet ggneenaagg nngegnenee eegetagnte eeenneaagt eneneneeta
                                                                          360
 aactcancen nattacnege ttentgagta teacteceeg aateteacee tactcaacte
                                                                          420
 aaaaanaten gatacaaaat aatneaagee tgnttatnae aetntgaetg ggtetetatt
                                                                          480
 ttagnggtcc ntnaanchtc ctaatacttc cagtctncct tcnccaattt ccnaanggct
                                                                          540
 ctttcngaca gcatnttttg gttcccnntt gggttcttan ngaattgccc ttcntngaac
                                                                          600
 gggctcntct tttccttcgg ttancctggn ttcnnccggc cagttattat ttcccntttt
                                                                          660
 aaattentne entttanttt tggenttena aacceegge ettgaaaacg geeceetggt
                                                                          720
                                                                          755
 aaaaggttgt tttganaaaa tttttgtttt gttcc
       <210> 22
```

<211> 849 <212> DNA

```
<213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(849)
       <223> n = A, T, C or G
       <400> 22
 ttttttttt tttttangtg tngtcgtgca ggtagaggct tactacaant gtgaanacgt
                                                                         60
 acgetnggan taangegace eganttetag ganneneet aaaateanae tgtgaagatn
                                                                        120
 atcctgnnna cggaanggte accggnngat nntgctaggg tgnccnctcc cannnenttn
                                                                        180
 cataacteng nggccctgcc caccaccttc ggcggcccng ngnccgggcc cgggtcattn
                                                                        240
 gnnttaacen cactnngena neggttteen neecenneng accenggega teeggggtne
                                                                        300
 tetgtettee cetgnagnen anaaantggg ceneggneee etttaceeet nnacaageea
                                                                        360
 engeenteta neenengeee eccetecant nngggggact geenannget eegttnetng
                                                                        420
 nnacccennn gggtncctcg gttgtcgant cnaccgnang ccanggattc cnaaggaagg
 tgcgttnttg gcccctaccc ttcgctncgg nncacccttc ccgacnanga nccgctcccg
                                                                        480
 enennegnng cetenceteg caacacege netentengt neggnnnece ceceacege
                                                                        540
                                                                        600
necetenene ngnegnanen eteeneenee gteteannea ceacecegee eegecaggee
                                                                        660
ntcanccacn ggnngacnng nagenennte geneegegen gegneneet egeenengaa
                                                                        720
ctncntcngg ccantnncgc tcaanconna cnaaacgccg ctgcgcggcc cgnagcgncc
necteenega gteeteegn etteenacee anguntteen egaggacaen nnaceeegee
                                                                        780
                                                                        840
nncangcgg
                                                                        849
      <210> 23
      <211> 872
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(872)
      <223> n = A, T, C or G
      <400> 23
gegeaacta tacttegete gnactegtge geetegetne tetttteete egeaaceatg
                                                                        60
tetgaenane eegattngge ngatatenan aagntegane agteeaaaet gantaacaca
                                                                       120
cacacnonan aganaaatoc notgoottoc anagtanaon attgaacnng agaaccango
                                                                       180
nggcgaatcg taatnaggcg tgcgccgcca atntgtcncc gtttattntn ccagentene
                                                                       240
etnecnacec tachtetten nagetgtenn acceetngth egnaceecec naggteggga
tegggtttnn nntgacegng enneceetee eccenteeat nacganeene eegeaceace
                                                                       300
                                                                       360
nanngenege neceegnnet ettegeenee etgteetntn eccetginge etggenengn
                                                                       420
accgcattga ccctcgccnn ctncnngaaa ncgnanacgt ccgggttgnn annancgctg
                                                                       480
tgggnnngcg tetgeneege gtteetteen nennetteea ceatettent taengggtet
                                                                       540
conceente tennneache cetgggacge thteethtge ecceetthae tecceeett
                                                                       600
egnegitgnee egnececace nicatitinea naegniette acaanniet ggninnetee
                                                                       660
cnancingnen gtcancenag ggaagggngg ggnneenntg nttgaegttg nggngangte
                                                                       720
cgaanantce tencentean enetacecet egggegnnet etengtince aacttancaa
                                                                       780
ntetececeg ngngenente teagectene ceneceenet etetgeantg tnetetgete
                                                                       840
tnaccnntac gantnttcgn cnccctcttt cc
                                                                       872
      <210> 24
      <211> 815
      <212> DNA
     <213> Homo sapien
     <220>
     <221> misc_feature
     <222> (1)...(815)
     <223> n = A, T, C or G
     <400> 24
```

```
gcatgcaage ttgagtatte tatagngtea ectaaatane ttggentaat catggtenta
                                                                           .60
nctgncttcc tgtgtcaaat gtatacnaan tanatatgaa tctnatntga caaganngta
                                                                           120
tentneatta gtaacaantg tnntgteeat eetgtengan canatteeca tnnattnegn
                                                                           180
                                                                           240
egeattenen geneantatn taatngggaa ntennntnnn neacenneat etatentnee
                                                                           300
genecetgae tggnagagat ggatnantte tnntntgace nacatgttea tettggattn
aanancecee egengneeae eggttngnng enageennte ecaagacete etgtggaggt
                                                                          360
                                                                           420
aacctgcgtc aganncatca aacntgggaa acccgcnncc angtnnaagt ngnnncanan
gatcccgtcc aggnttnacc atcccttcnc agcgccccct ttngtgcctt anagngnagc
                                                                           480
gtgtccnanc cnctcaacat ganacgcgcc agnccanccg caattnggca caatgtcgnc
                                                                           540
gaacccccta gggggantna thcaaanccc caggattgtc chchcangaa atcccncanc
                                                                           600
                                                                           660
cccnccctac ccnnctttgg gacngtgacc aantcccgga gtnccagtcc ggccngnctc
cccaccggt nnccntgggg gggtgaanct cngnntcanc cngncgaggn ntcgnaagga
                                                                           720
accggneetn ggnegaanng anenntenga agngeenent egtataacce ceceteneca
                                                                          780
                                                                           815
nccnacngnt agntccccc cngggtncgg aangg
     . <210> 25
      <211> 775
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(775)
      <223> n = A, T, C or G
                                                                            60
ccgagatgtc tcgctccgtg gccttagctg tgctcgcgct actctctctt tctggcctgg
                                                                           120
aggetateca gegtaeteca aagatteagg tttaeteacg teatecagea gagaatggaa
agtcaaattt cctgaattgc tatgtgtctg ggtttcatcc atccgacatt gaanttgact
                                                                           180
tactgaagaa tgganagaga attgaaaaag tggagcattc agacttgtct ttcagcaagg
                                                                           240
                                                                           300
actggtcttt ctatctcntg tactacactg aattcacccc cactgaaaaa gatgagtatg
cctqccgtgt gaaccatgtg actttgtcac agcccaagat agttaagtgg gatcgagaca
                                                                           360
tgtaagcagn cnncatggaa gtttgaagat gccgcatttg gattggatga attccaaatt ctgcttgctt gcnttttaat antgatatgc ntatacaccc taccctttat gnccccaaat
                                                                           420
                                                                           480
tgtaggggtt acatnantgt tcncntngga catgatette etttataant cencentteg
                                                                           540
aattgcccgt enccengttn ngaatgttte ennaaceaeg gttggctccc ccaggtenee
                                                                           600
tettacggaa gggcetggge enetttneaa ggttggggga acenaaaatt tenettntge
                                                                           660
conceencea enntettgng nnencanttt ggaaccette enatteecet tggeetenna
                                                                           720
nccttnncta anaaaacttn aaancgtngc naaanntttn acttcccccc ttacc
                                                                           775
      <210> 26
      <211> 820
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (820)
      <223> n = A, T, C or G
                                                                            60
anattantac agtgtaatct tttcccagag gtgtgtanag ggaacggggc ctagaggcat
cccanagata nottatanca acagtgottt gaccaagago tgctgggcac atttcctgca gaaaaggtgg cggtccccat cactcctcct ctcccatago catcccagag gggtgagtag
                                                                           120
                                                                           180
                                                                           240
ccatcangcc ttcggtggga gggagtcang gaaacaacan accacagagc anacagacca
ntgatgacca tgggcgggag cgagcctctt ccctgnaccg gggtggcana nganagccta
                                                                           300
                                                                           360
nctgaggggt cacactataa acgttaacga conagatnan cacctgcttc aagtgcaccc
                                                                           420
ttectacetg acnaecagng accnnnaact gengeetggg gacagenetg ggancageta
acnnageact cacetgeece eccatggeeg thegenteec tggteetgne aagggaaget
                                                                           480
ccctgttgga attncgggga naccaaggga nccccctcct ccanctgtga aggaaaaann
                                                                           540
gatggaattt thecetteeg geennteece tetteettta caegeceect nntactente
                                                                           600
                                                                           660
tecetetntt nteetgnene acttttnace cennnattte cettnattga teggannetn
```

```
ganattccac tnncgcctnc cntcnatcng naanacnaaa nactntctna cccnggggat
                                                                        720
 gggnncctcg ntcatcctct ctttttcnct accnccnntt ctttgcctct ccttngatca
780tccaacente gntggeentn ecececennn teetttneee
820
       <210> 27
       <211> 818
       <212> DNA
       <213> Homo sapien
       <220>
      <221> misc_feature
       <222> (1) ... (818)
       <223> n = A,T,C or G
       <400> 27
tctgggtgat ggcctcttcc tcctcaggga cctctgactg ctctgggcca aagaatctct
                                                                         60
tgtttcttct ccgagcccca ggcagcggtg attcagccct gcccaacctg attctgatga
                                                                        120
ctgcggatgc tgtgacggac ccaaggggca aatagggtcc cagggtccag ggaggggcgc
                                                                        180
ctgctgagca cttccgccc tcaccctgc cagcccctgc catgagctct gggctgggtc
                                                                        240
tecgeeteca gggttetget ettecangea ngecancaag tggegetggg ceacactgge
                                                                        300
ttetteetge ecentecetg getetgante tetgtettee tgteetgtge angeneettg
                                                                        360
gateteagtt tecetenete anngaactet gtttetgann tetteantta actntgantt
                                                                        420
tatnacenan tggnetgtne tgtennactt taatgggeen gaeeggetaa teeeteete
                                                                        480
netecettee anttennnna acongettne ententetee centanceeg cengggaane
                                                                        540
ctcctttgcc ctnaccangg gccnnnaccg cccntnnctn ggggggcnng gtnnctncnc
                                                                        600
etgntnnece enetenennt theetegtee ennennegen nngeanntte nengteeenn
                                                                        660
tnnctctten ngtntegnaa ngntenentn tnnnnngnen ngntnntnen teeetetene
                                                                       720
cnnntgnang tnnttnnnne nengnneece nnnnennnnn nggnnntnnn tetnenenge
                                                                       780
cccnncccc ngnattaagg cctccnntct ccggccnc
                                                                       818
      <210> 28
      <211> 731
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(731)
      <223> n = A, T, C or G
      <400> 28
aggaagggcg gagggatatt gtangggatt gagggatagg agnataangg gggaggtgtg
                                                                        60
teceaacatg anggtgnngt tetettttga angagggttg ngtttttann eenggtgggt
                                                                       120
gattnaaccc cattgtatgg agnnaaaggn tttnagggat tittcggctc ttatcagtat
                                                                       180
ntanatteet gtnaategga aaatnatntt tennenggaa aatnttgete eeateegnaa
                                                                       240
attneteccg ggtagtgcat nttngggggn engecangtt teccaggetg ctanaategt
                                                                       300
actaaagntt naagtgggan tncaaatgaa aacctnncac agagnateen tacccgactg
                                                                       360
tnnnttnect tegecetntg actetgenng ageceaatac cenngngnat gtenecengn
                                                                       420
nnngegnene tgaaannnne tegnggetnn gancateang gggtttegea teaaaagenn
                                                                       480
cgtttencat naaggeactt tngceteate caacenetng ecetenneca tttngcegte
                                                                       540
nggtteneet aegetnntng eneetnnntn ganattttne eegeetnggg naanceteet
                                                                       600
gnaatgggta gggncttntc ttttnaccnn gnggtntact aatcnnctnc acgcntnctt
                                                                       660
tetenacece ecceetttt caateceane ggenaatggg gteteceenn eganggggg
                                                                       720
nnncccannc c
                                                                       731
      <210> 29
      <211> 822
      <212> DNA
     <213> Homo sapien
     <220>
```

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<221> misc_feature
      <222> (1) ... (822)
      <223> n = A, T, C or G
      <400> 29
                                                                            60
actagtccag tgtggtggaa ttccattgtg ttggggncnc ttctatgant antnttagat
cgctcanacc tcacancctc ccnacnangc ctataangaa nannaataga nctgtncnnt
                                                                           120
                                                                           180
aththtache teatanneet ennnaceeae teeetettaa ecentaetgt geetatngen
tnnctantct ntgccgcctn cnanccaccn gtgggccnac cncnngnatt ctcnatctcc
                                                                           240
tenecatntn geetananta ngtneatace etatacetae necaatgeta nnnetaanen
                                                                           300
tocatnantt annntaacta coactgacht ngactttene athaneteet aatttgaate
                                                                           360
                                                                           420
tactctgact cccacngcct annnattagc anentecccc nacnatntct caaccaaatc
ntcaacaacc tatctanctg ttcnccaacc nttncctccg atccccnnac aacccccctc
                                                                           480
ccaaataccc nccacctgac ncctaacccn caccatcccg gcaagccnan ggncatttan ccactggaat cacnatngga naaaaaaaac ccnaactctc tancncnnat ctccctaana
                                                                           540
                                                                           600
aatnotootn naatttactn noantnocat caanoocacn tgaaacnnaa cocctgtttt
                                                                           660
tanatocott otttogaaaa conaccottt annnoccaac otttngggoo cocconotno
                                                                           720
                                                                           780
ccnaatgaag gncncccaat cnangaaacg nccntgaaaa ancnaggcna anannntccg
                                                                           822
canatoctat cocttanttn ggggnccctt ncccngggcc cc
      <210> 30
      <211> 787
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (787)
      <223> n = A, T, C or G
      <400> 30
                                                                             60
cggccgcctg ctctggcaca tgcctcctga atggcatcaa aagtgatgga ctgcccattg
                                                                            120
ctagagaaga cottototo tactgtoatt atggagocot goagactgag ggotococtt
gtctgcagga tttgatgtct gaagtcgtgg agtgtggctt ggagctcctc atctacatna gctggaagcc ctggagggcc tctctcgcca gcctcccct tctctccacg ctctccangg
                                                                            180
                                                                           240
acaccagggg ctccaggcag cccattattc ccagnangac atggtgtttc tccacgcgga
                                                                            300
cccatggggc ctgnaaggcc agggtctcct ttgacaccat ctctcccgtc ctgcctggca
                                                                            360
ggccgtggga tccactantt ctanaacggn cgccaccncg gtgggagctc cagctttgt
                                                                            420
tecenttaat gaaggttaat tgenegettg gegtaateat nggteanaac tnttteetgt
                                                                            480
                                                                            540
gtgaaattgt ttntcccctc ncnattccnc ncnacatacn aacccggaan cataaagtgt
taaagcctgg gggtngcctn nngaatnaac tnaactcaat taattgcgtt ggctcatggc
                                                                            600
cegettteen ttenggaaaa etgtenteee etgenttnnt gaateggeea eeeecenggg
                                                                            660
aaaagcggtt tgcnttttng ggggntcctt ccncttcccc cctcnctaan ccctncgcct
                                                                            720
cggtcgttnc nggtngcggg gaangggnat nnnctcccnc naagggggng agnnngntat
                                                                            780
                                                                            787
ccccaaa
       <210> 31
       <211> 799
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(799)
       <223> n = A, T, C or G
       <400> 31
ttttttttt ttttttggc gatgctactg tttaattgca ggaggtgggg gtgtgtgtac
                                                                             60
 catgtaccag ggctattaga agcaagaagg aaggagggag ggcagagcgc cctgctgagc
                                                                            120
 aacaaaggac tectgeagee ttetetgtet gtetettgge geaggeacat ggggaggeet
                                                                            180
                                                                            240
 cccgcagggt gggggccacc agtccagggg tgggagcact acanggggtg ggagtgggtg
 gtggctggtn cnaatggcct gncacanatc cctacgattc ttgacacctg gatttcacca
                                                                            300
```

```
ggggaccttc tgttctccca nggnaacttc ntnnatctcn aaagaacaca actgtttctt
                                                                             360
 engeanttet ggetgtteat ggaaageaca ggtgteenat ttnggetggg acttggtaca
                                                                             420
 tatggtteeg geeeacetet ecentenaan aagtaattea ecececeen centetnttg
                                                                             480
 cctgggccct taantaccca caccggaact canttantta ttcatcttng gntgggcttg
                                                                             540
 ntnatencen cetgaangeg ceaagttgaa aggeeaegee gtnecenete eecatagnan
                                                                             600
 nttttnnent canctaatge ecceeengge aacnatecaa teeceeecen tgggggeee
                                                                             660
 ageceangge eccegneteg ggnnneengn enegnantee ecaggntete ceantengne
 connigence ecegeacgea gaacanaagg ntngageene egeanninnin nggtinenae
                                                                             720
                                                                             780
 ctcgccccc ccnncqnnq
                                                                             799
        <210> 32
        <211> 789
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1)...(789)
        <223> n = A, T, C or G
       <400> 32
 ttttnccnag ggcaggttta ttgacaacct cncgggacac aancaggctg gggacaggac
                                                                             60
                                                                            120
 ggcaacagge teeggeggeg geggeggegg cectacetge ggtaceaaat ntgcageete egeteeeget tgatntteet etgeagetge aggatgeent aaaacaggge eteggeentn
                                                                            180
                                                                            240
 ggtgggcacc ctgggatttn aatttccacg ggcacaatgc ggtcgcancc cctcaccacc
 nattaggaat agtggtntta ecencenceg ttggeneact eceentggaa accaettnte
                                                                            300
                                                                            360
 geggeteegg catetggtet taaacettge aaacnetggg geeetettt tggttantnt
 ncengecaca ateatnacte agactggene gggetggeee caaaaaanen eeccaaaace
                                                                            420
                                                                            480
 ggnecatgte ttnncggggt tgetgenatn tneateacet ecegggenea neaggneaac
ccaaaagttc ttgnggcccn caaaaaanct ccggggggnc ccagtttcaa caaagtcatc
                                                                            540
ccccttggcc cccaaatcct cccccgntt nctgggtttg ggaacccacg cctctnnctt tggnnggcaa gntggntccc ccttcgggcc cccggtgggc ccnnctctaa ngaaaacncc
                                                                            600
                                                                            660
ntectnnnca ecateceee nngnnaegne tancaangna teeettttt tanaaaeggg
                                                                            720
                                                                            780
cccccncq
                                                                           789
       <210> 33
       <211> 793
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1) ... (793)
       <223> n = A, T, C or G
       <400> 33
gacagaacat gttggatggt ggagcacctt tctatacgac ttacaggaca gcagatgggg
aattcatggc tgttggagca atanaacccc agttctacga gctgctgatc aaaggacttg
                                                                            60
                                                                           120
gactaaagtc tgatgaactt cccaatcaga tgagcatgga tgattggcca gaaatgaana
                                                                           180
agaagttige agatgtattt geaaagaaga egaaggeaga giggtgieaa atettigaeg
                                                                           240
gcacagatge etgtgtgact eeggttetga ettttgagga ggttgtteat eatgateaca
                                                                           300
acaangaacg gggctcgttt atcaccantg aggagcagga cgtgagcccc cgccctgcac
                                                                           360
ctctgctgtt aaacacccca gccatccctt ctttcaaaag ggatccacta cttctagagc
                                                                           420
ggncgccacc gcggtggagc tccagctttt gttcccttta gtgagggtta attgcgcgct
                                                                           480
tggcgtaatc atggtcatan ctgtttcctg tgtgaaattg ttatccgctc acaattccac acaacatacg anccggaagc atnaaatttt aaagcctggn ggtngcctaa tgantgaact
                                                                           540
                                                                           600
nactcacatt aattggettt gegeteactg ecegetttee agteeggaaa acetgteett
gccagctgcc nttaatgaat enggccacce eceggggaaa aggengtttg ettnttgggg
                                                                           660
                                                                           720
egenettece getttetege tteetgaant eetteeece ggtetttegg ettgeggena
                                                                           780
acggtatcna cct
                                                                           793
```

```
<210> 34
      <211> 756
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (756)
      <223> n = A, T, C or G
geogegaceg geatgtacga geaacteaag ggegagtgga acegtaaaag eeceaatett
                                                                                60
ancaagtgcg gggaanagct gggtcgactc aagctagttc ttctggagct caacttcttg
                                                                               120
ccaaccacag ggaccaagct gaccaaacag cagctaattc tggcccgtga catactggag
                                                                               180
ateggggeec aatggageat ectaegeaan gacateeect eettegageg etaeatggee
                                                                               240
cageteaaat getaetaett tgattacaan gageagetee eegagteage etatatgeae
                                                                               300
cagetettgg geeteaacet ectetteetg etgteecaga acegggtgge tgantnecae
                                                                               360
acgganttgg ancggctgcc tgcccaanga catacanacc aatgtctaca tcnaccacca
                                                                               420
                                                                               480
gtgtcctgga gcaatactga tgganggcag ctaccncaaa gtnttcctgg ccnagggtaa
catececege egagagetae acettettea ttgacatect getegacaet ateagggatg
                                                                               540
                                                                               600
aaaatcgcng ggttgctcca gaaaggctnc aanaanatcc ttttcnctga aggcccccgg
atnonctagt notagaatcg googcoatc goggtgganc etccaacett togttnecet ttactgaggg ttnattgccg coettggcgt tatcatggte acnocngttn cetgtgtga
                                                                               660
                                                                               720
                                                                               756
aattnttaac ccccacaat tccacgccna cattng
      <210> 35
      <211> 834
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(834)
      <223> n = A, T, C or G
      <400> 35
ggggatetet anatemacet gnatgeatgg ttgteggtgt ggtegetgte gatgaanatg
                                                                                60
aacaggatet tgeeettgaa getetegget getgtnttta agttgeteag tetgeegtea
                                                                               120
tagtcagaca enetettggg caaaaaacan caggatntga gtettgattt cacetecaat
                                                                               180
aatcttengg getgtetget eggtgaacte gatgaenang ggeagetggt tgtgtntgat aaanteeane angtteteet tggtgaeete eeetteaaag ttgtteegge etteateaaa
                                                                               240
                                                                               300
cttctnnaan angannance canctttgtc gagctggnat ttgganaaca cgtcactgtt
                                                                               360
ggaaactgat cccaaatggt atgtcatcca tcgcctctgc tgcctgcaaa aaacttgctt
                                                                               420
                                                                               480
ggencaaate egacteeen teettgaaag aageenatea cacceeete eetggactee
nncaangact ctnccgctnc cccntccnng cagggttggt ggcannccgg gcccntgcgc ttcttcagcc agttcacnat nttcatcagc ccctctgcca gctgttntat tccttggggg
                                                                               540
                                                                               600
ggaanccgtc tctcccttcc tgaannaact ttgaccgtng gaatagccgc gcntcnccnt
                                                                               660
achtnotggg cogggttcaa antocotoon ttgnonnton cotogggcca ttotggattt
                                                                               720
                                                                               780
nccnaacttt tteetteece eneceenegg ngtttggntt ttteatnggg ceceaactet
                                                                               834
getnttggcc anteceetgg gggentntan eneceeetnt ggtecentng ggcc
       <210> 36
       <211> 814
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1) ... (814)
       <223> n = A, T, C or G
       <400> 36
```

```
eggnegettt cengeegege ecegttteca tgacnaagge teeetteang ttaaataenn
                                                                                60
  cctagnaaac attaatgggt tgctctacta atacatcata cnaaccagta agcctgccca
                                                                               120
  naacgccaac tcaggccatt cctaccaaag gaagaaaggc tggtctctcc acccctgta
                                                                               180
  ggaaaggcct gccttgtaag acaccacaat ncggctgaat ctnaagtctt gtgttttact
                                                                               240
 aatggaaaaa aaaaataaac aanaggtttt gttctcatgg ctgcccaccg cagcctggca
                                                                              300
 ctaaaacanc ccagcgctca cttctgcttg ganaaatatt ctttgctctt ttggacatca ggcttgatgg tatcactgcc acntttccac ccagctgggc ncccttcccc catntttgtc
                                                                              360
                                                                               420
 antganctgg aaggeetgaa nettagtete caaaagtete ngeecacaag accggecace
                                                                              480
 aggggangte ntttncagtg gatetgecaa anantaceen tateatennt gaataaaaag
                                                                              540
 geceetgaac ganatgette cancaneett taagaceeat aateetngaa ecatggtgee
                                                                              600
 cttccggtct gatccnaaag gaatgttcct gggtcccant ccctcctttg ttncttacgt
                                                                              660
 tgtnttggac centgetngn atnacecaan tganatecee ngaageacee tneeeetgge
                                                                              720
 atttganttt entaaattet etgeeetaen netgaaagea enatteeetn ggeneenaan
                                                                              780
 ggngaactca agaaggtctn ngaaaaacca cncn
                                                                              814
        <210> 37
        <211> 760
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc feature
        <222> (1) ... (760)
        <223> n = A, T, C or G
        <400> 37
gcatgctgct cttcctcaaa gttgttcttg ttgccataac aaccaccata ggtaaagcgg
                                                                               60
 gegeagtgtt egetgaaggg gttgtagtae eagegeggga tgeteteett geagagteet
                                                                              120
 gtgtctggca ggtccacgca atgccctttg tcactgggga aatggatgcg ctggagctcg
                                                                              180
 tenaanceae tegtgtattt tteacangea geeteeteeg aagenteegg geagttgggg
                                                                              240
 gtgtcgtcac actccactaa actgtcgatn cancagccca ttgctgcagc ggaactgggt
                                                                              300
 gggctgacag gtgccagaac acactggatn ggcctttcca tggaagggcc tgggggaaat
                                                                              360
 cnectnance caaactgeet eteaaaggee acettgeaca eeeegacagg etagaaatge
                                                                              420
 actettette ccaaaggtag ttgttettgt tgcccaagea nectecanea aaccaaaane
                                                                              480
 ttgcaaaatc tgctccgtgg gggtcatnnn taccanggtt ggggaaanaa acccggcngn gancenectt gtttgaatge naaggnaata atcctcctgt cttgcttggg tggaanagca
                                                                              540
                                                                             600
 caattgaact gttaacnttg ggccgngttc cnctngggtg gtctgaaact aatcaccgtc actggaaaaa ggtangtgcc ttccttgaat tcccaaantt cccctngntt tgggtnnttt
                                                                              660
                                                                             720
 ctectetnee ctaaaaateg tntteeecce centanggeg
                                                                             760
       <210> 38
       <211> 724
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1) ... (724)
       <223> n = A, T, C or G
       <400> 38
 ttttttttt tttttttt tttttttt tttttaaaaa ccccctccat tgaatgaaaa
                                                                              60
cttccnaaat tgtccaaccc cctcnnccaa atnnccattt ccgggggggg gttccaaacc
                                                                             120
caaattaatt ttgganttta aattaaatnt tnattngggg aanaanccaa atgtnaagaa
                                                                             180
aatttaaccc attatnaact taaatneetn gaaaccentg gnttecaaaa atttttaacc
                                                                             240
cttaaatccc tccgaaattg ntaanggaaa accaaattcn cctaaggctn tttgaaggtt
                                                                             300
ngatttaaac ccccttnant tnttttnacc cnngnctnaa ntatttngnt tccggtgttt
                                                                             360
tectnttaan entnggtaac tecegntaat gaannneet aanceaatta aacegaattt
                                                                             420
tttttgaatt ggaaattcen ngggaattna ceggggtttt tecentttgg gggecatnee
                                                                             480
cccnctttcg gggtttgggn ntaggttgaa tttttnnang ncccaaaaaa ncccccaana
                                                                             540
aaaaaactcc caagnnttaa ttngaatntc ccccttccca ggccttttgg gaaaggnggg
                                                                             600
tttntggggg cengggantt entteeceen ttncenecee ecceeenggt aaanggttat
                                                                             660
```

```
720
ngnntttggt ttttgggccc cttnanggac cttccggatn gaaattaaat ccccgggncg
                                                                          724
      <210> 39
      <211> 751
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(751)
      <223> n = A, T, C or G
      <400> 39
ttttttttt tttttctttg ctcacattta atttttattt tgatttttt taatgctgca
                                                                           60
                                                                          120
caacacaata tttatttcat ttgtttcttt tatttcattt tatttgtttg ctgctgctgt
                                                                          180
tttatttatt tttactgaaa gtgagaggga acttttgtgg ccttttttcc tttttctgta
                                                                          240
ggccgcctta agctttctaa atttggaaca tctaagcaag ctgaanggaa aagggggttt
cgcaaaatca ctcgggggaa nggaaaggtt gctttgttaa tcatgcccta tggtgggtga
                                                                          300
ttaactgett gtacaattac ntttcacttt taattaattg tgctnaange tttaattana
                                                                          360
                                                                          420
cttgggggtt ccctccccan accaaccccn ctgacaaaaa gtgccngccc tcaaatnatg
teceggennt enttgaaaca caengengaa ngtteteatt nteceenene cagginaaaa
                                                                          480
                                                                          540
tgaagggtta ccatntttaa cnccacctcc acntggcnnn gcctgaatcc tcnaaaancn
ccctcaanch aattnetnng ecceggtene gentnngtee enceeggget eegggaantn
                                                                          600
caccconga annonntnno naacnaaatt cogaaaatat toconntono toaattocoo
                                                                          660
cnnagactnt cctcnncnan cncaattttc ttttnntcac gaacnegnnc cnnaaaatgn
                                                                          720
                                                                          751
nnnncncctc cnctngtccn naatcnccan c
      <210> 40
      <211> 753
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (753)
      <223> n = A, T, C or G
       <400> 40
gtggtatttt ctgtaagatc aggtgttcct ccctcgtagg tttagaggaa acaccctcat
                                                                           60
                                                                          120
agatgaaaac ccccccgaga cagcagcact gcaactgcca agcagccggg gtaggagggg
                                                                          180
cgccctatgc acagctgggc ccttgagaca gcagggcttc gatgtcaggc tcgatgtcaa
                                                                          240
tggtctggaa gcggcggctg tacctgcgta ggggcacacc gtcagggccc accaggaact
tetcaaagtt ccaggcaacn tegttgegac acaceggaga ccaggtgatn agettggggt
                                                                          300
                                                                          360
cggtcataan cgcggtggcg tcgtcgctgg gagctggcag ggcctcccgc aggaaggcna
ataaaaggtg cgccccgca ccgttcanct cgcacttctc naanaccatg angttgggct
                                                                          420
cnaacccacc accanneegg actteettga nggaatteec aaatetette gntettggge
                                                                          480
                                                                          540
ttctnctgat gccctanctg gttgcccngn atgccaanca nccccaance ccggggtcct
aaancaccon cctcctcntt tcatctgggt tnttntcccc ggaccntggt tcctctcaag ggancccata tctcnaccan tactcaccnt necececent gnnacccane cttctanngn
                                                                          600
                                                                          660
ttcccncccg ncctctggcc cntcaaanan gcttncacna cctgggtctg ccttccccc
                                                                          720
                                                                          753
tnecetatet gnacecenen tttgtetean tnt
       <210> 41
       <211> 341
       <212> DNA
       <213> Homo sapien
       <400> 41
                                                                           60
 actatateca teacaacaga catgetteat eccatagaet tettgacata getteaaatg
 agtgaaccca teettgattt atatacatat atgtteteag tattttggga geettteeac
                                                                          120
 ttctttaaac cttgttcatt atgaacactg aaaataggaa tttgtgaaga gttaaaaagt
                                                                          180
```

```
tatagcttgt ttacgtagta agtttttgaa gtctacattc aatccagaca cttagttgag
                                                                         240
 tgttaaactg tgatttttaa aaaatatcat ttgagaatat tctttcagag gtattttcat
                                                                         300
 ttttactttt tgattaattg tgttttatat attagggtag t
                                                                         341
       <210> 42
       <211> 101
       <212> DNA
       <213> Homo sapien
       <400> 42
 acttactgaa tttagttetg tgetetteet tatttagtgt tgtateataa ataetttgat
                                                                         60
 gtttcaaaca ttctaaataa ataattttca gtggcttcat a
                                                                        101
       <210> 43
       <211> 305
       <212> DNA
       <213> Homo sapien
       <400> 43
 acatetttgt tacagtetaa gatgtgttet taaateacea tteetteetg gteeteacee
                                                                         60
 tccagggtgg tctcacactg taattagagc tattgaggag tctttacagc aaattaagat
                                                                        120
 tcagatgeet tgetaagtet agagttetag agttatgttt cagaaagtet aagaaaceca
                                                                        180
 cctcttgaga ggtcagtaaa gaggacttaa tatttcatat ctacaaaatg accacaggat
                                                                        240
 tggatacaga acgagagtta tcctggataa ctcagagctg agtacctgcc cgggggccgc
                                                                        300
 tcqaa
                                                                        305
       <210> 44
       <211> 852
       <212> DNA
       <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(852)
      <223> n = A, T, C or G
      <400> 44
acataaatat cagagaaaag tagtetttga aatatttaeg teeaggagtt etttgtttet
                                                                         60
gattatttgg tgtgtgttt ggtttgtgtc caaagtattg gcagcttcag ttttcatttt
                                                                        120
ctctccatcc tcgggcattc ttcccaaatt tatataccag tcttcgtcca tccacacgct
                                                                       180
ccagaatttc tcttttgtag taatatctca tagctcggct gagcttttca taggtcatgc
                                                                       240
tgctgttgtt cttctttta ccccatagct gagccactgc ctctgatttc aagaacctga
agacgecete agateggtet teccatttta ttaateetgg gttettgtet gggtteaaga
                                                                       300
                                                                       360
ggatgtegeg gatgaattee cataagtgag teeetetegg gttgtgettt ttggtgtgge
                                                                       420
acttggcagg ggggtcttgc tcctttttca tatcaggtga ctctgcaaca ggaaggtgac
                                                                       480
tggtggttgt catggagate tgagecegge agaaagtttt getgteeaac aaatetaetg
                                                                       540
tgctaccata gttggtgtca tataaatagt tctngtcttt ccaggtgttc atgatggaag
                                                                       600
geteagtttg tteagtettg acaatgacat tgtgtgtgga etggaacagg teactactge
                                                                       660
actggeegtt ceactteaga tgctgeaagt tgctgtagag gagntgeece geegteeetg
                                                                       720
ccgcccgggt gaactcctgc aaactcatgc tgcaaaggtg ctcgccgttg atgtcgaact
                                                                       780
cntggaaagg gatacaattg gcatccagct ggttggtgtc caggaggtga tggagccact
                                                                       840
cccacacctg gt
                                                                       852
      <210> 45
      <211> 234
      <212> DNA
      <213> Homo sapien
      <400> 45
acaacagacc cttgctcgct aacgacctca tgctcatcaa gttggacgaa tccgtgtccg
                                                                        60
agtotgacac cateoggage atcagcattg cttogcagtg coctacogeg gggaactott
                                                                       120
geetegttte tggetggggt etgetggega aeggeagaat geetaeegtg etgeagtgeg
                                                                       180
```

```
tgaacgtgtc ggtggtgtct gaggaggtct gcagtaagct ctatgacccg ctgt
                                                                          234
      <210> 46
      <211> 590
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1) ... (590)
      <223> n = A, T, C or G
      <400> 46
actttttatt taaatgttta taaggcagat ctatgagaat gatagaaaac atggtgtgta
                                                                           60
atttgatagc aatattttgg agattacaga gttttagtaa ttaccaatta cacagttaaa
                                                                          120
                                                                          180
aagaagataa tatattocaa goanatacaa aatatotaat gaaagatoaa ggoaggaaaa
tgantataac taattgacaa tggaaaatca attttaatgt gaattgcaca ttatccttta
                                                                          240
aaagctttca aaanaaanaa ttattgcagt ctanttaatt caaacagtgt taaatggtat
                                                                          300
caggataaan aactgaaggg canaaagaat taattttcac ttcatgtaac ncacccanat
                                                                          360
ttacaatggc ttaaatgcan ggaaaaagca gtggaagtag ggaagtantc aaggtctttc
                                                                          420
tggtctctaa tctgccttac tctttgggtg tggctttgat cctctggaga cagctgccag
                                                                          480
ggctcctgtt atatccacaa tcccagcagc aagatgaagg gatgaaaaag gacacatgct
                                                                          540.
                                                                          590
gcetteettt gaggagactt cateteactg gccaacacte agteacatgt
       <210> 47
       <211> 774
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (774)
       <223> n = A, T, C or G
       <400> 47
 acaagggggc ataatgaagg agtggggana gattttaaag aaggaaaaaa aacgaggccc
                                                                            60
                                                                           120
 tgaacagaat tttcctgnac aacggggctt caaaataatt ttcttgggga ggttcaagac
 getteactge ttgaaactta aatggatgtg ggacanaatt ttetgtaatg accetgaggg
                                                                           180
 cattacagac gggactctgg gaggaaggat aaacagaaag gggacaaagg ctaatcccaa
                                                                           240
 aacatcaaag aaaggaaggt ggcgtcatac ctcccagcct acacagttct ccagggctct
                                                                           300
 cetcatecet ggaggacgae agtggaggaa caactgacca tgtccccagg ctcetgtgtg
                                                                           360
 etggeteetg gtetteagee eccagetetg gaageecace etetgetgat eetgegtgge
                                                                           420
 ccacacteet tgaacacaca tecceaggtt atatteetgg acatggetga accteetatt
                                                                           480
 cctacttccg agatgccttg ctccctgcag cctgtcaaaa tcccactcac cctccaaacc
                                                                           540
 acggcatggg aagcctttct gacttgcctg attactccag catcttggaa caatccctga
                                                                           600
 ttccccactc cttagaggca agatagggtg gttaagagta gggctggacc acttggagcc aggctgctgg cttcaaattn tggctcattt acgagctatg ggaccttggg caagtnatct
                                                                           660
                                                                           720
                                                                           774
 teactictat gggenteatt tigttetace tgcaaaatgg gggataataa tagt
       <210> 48
        <211> 124
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1) ... (124)
        <223> n = A, T, C or G
        <400> 48
 canaaattga aattttataa aaaggcattt ttctcttata tccataaaat gatataattt
                                                                            60
 ttgcaantat anaaatgtgt cataaattat aatgtteett aattacaget caacgcaact
                                                                           120
```

```
tggt
                                                                          124
        <210> 49
        <211> 147
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1) ... (147)
        <223> n = A, T, C or G
 gccgatgcta ctattttatt gcaggaggtg ggggtgtttt tattattctc tcaacagctt
 tgtggctaca ggtggtgtct gactgcatna aaaanttttt tacgggtgat tgcaaaaatt
                                                                          60
                                                                         120
 ttagggcacc catatcccaa gcantgt
                                                                         147
       <210> 50
       <211> 107
       <212> DNA
       <213> Homo sapien
       <400> 50
 acattaaatt aataaaagga ctgttggggt tctgctaaaa cacatggctt gatatattgc
 atggtttgag gttaggagga gtťaggcata tgttttggga gaggggt
                                                                          60
                                                                         107
       <210> 51
       <211> 204
       <212> DNA
       <213> Homo sapien
gteetaggaa gtetagggga cacaegaete tggggteaeg gggeegaeae aettgeaegg
cgggaaggaa aggcagagaa gtgacaccgt cagggggaaa tgacagaaag gaaaatcaag
                                                                         60
geettgeaag gteagaaagg ggaeteaggg etteeaceae ageeetgeee caettggeea
                                                                         120
                                                                        180
cctccctttt gggaccagca atgt
                                                                        204
       <210> 52
       <211> 491
       <212> DNA
       <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(491)
      <223> n = A, T, C or G
      <400> 52
acaaagataa catttatctt ataacaaaaa tttgatagtt ttaaaggtta gtattgtgta
gggtattttc caaaagacta aagagataac tcaggtaaaa agttagaaat gtataaaaca
ccatcagaca ggtttttaaa aaacaacata ttacaaaatt agacaatcat ccttaaaaaa
                                                                        120
aaaacttett gtateaattt ettttgttea aaatgaetga ettaantatt tttaaatatt
                                                                        180
tcanaaacac ttcctcaaaa attttcaana tggtagcttt canatgtncc ctcagtccca
                                                                        240
atgttgctca gataaataaa tctcgtgaga acttaccacc caccacaagc tttctggggc
                                                                        300
atgcaacagt gtctttctt tnctttttct ttttttttt ttacaggcac agaaactcat
                                                                        360
caattttatt tggataacaa agggtctcca aattatattg aaaaataaat ccaagttaat
                                                                        420
                                                                        480
atcactcttg t
                                                                        491
      <210> 53
      <211> 484
      <212> DNA
      <213> Homo sapien
```

```
<220>
     <221> misc_feature
      <222> (1) ... (484)
      <223> n = A, T, C or G
      <400> 53
acataattta gcagggctaa ttaccataag atgctattta ttaanaggtn tatgatctga
                                                                         60
gtattaacag ttgctgaagt ttggtatttt tatgcagcat tttctttttg ctttgataac
                                                                        120
actacagaac cettaaggac actgaaaatt agtaagtaaa gttcagaaac attagetget
                                                                        180
caatcaaatc tctacataac actatagtaa ttaaaacgtt aaaaaaaagt gttgaaatct
                                                                        240
gcactagtat anaccgctcc tgtcaggata anactgcttt ggaacagaaa gggaaaaanc
                                                                        300
agetttgant ttetttgtge tgatangagg aaaggetgaa ttacettgtt geeteteeet
                                                                        360
aatgattggc aggtenggta aatnecaaaa catattecaa etcaacaett etttteeneg
                                                                        420
tancttgant ctgtgtattc caggancagg cggatggaat gggccagccc ncggatgttc
                                                                        480
                                                                        484
cant
      <210> 54
      <211> 151
      <212> DNA
      <213> Homo sapien
      <400> 54
actaaacete gtgettgtga actecataca gaaaacggtg ceatecetga acaeggetgg
                                                                         60
ccactgggta tactgctgac aaccgcaaca acaaaaacac aaatccttgg cactggctag
                                                                        120
                                                                        151
tctatgtcct ctcaagtgcc tttttgtttg t
       <210> 55
       <211> 91
       <212> DNA
       <213> Homo sapien
acctggcttg tctccgggtg gttcccggcg cccccacgg tccccagaac ggacactttc
                                                                         60
                                                                          91
 gccctccagt ggatactcga gccaaagtgg t
       <210> 56
       <211> 133
       <212> DNA
       <213> Homo sapien
 ggcggatgtg cgttggttat atacaaatat gtcattttat gtaagggact tgagtatact
       <400> 56
                                                                          60
 tggatttttg gtatctgtgg gttgggggga cggtccagga accaataccc catggatacc
                                                                         120
                                                                         133
 aagggacaac tgt
       <210> 57
       <211> 147
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (147)
       <223> n = A, T, C or G
       <400> 57
 actotggaga acctgagecg ctgctccgcc tctgggatga ggtgatgcan gengtggcgc
                                                                          60
 gactgggage tgagecette cetttgegee tgeeteagag gattgttgee gaentgeana
                                                                         120
                                                                         147
  tctcantggg ctggatncat gcagggt
```

<210> 58

```
<211> 198
         <212> DNA
         <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1) ... (198)
        <223> n = A, T, C or G
        <400> 58
  acagggatat aggtttnaag ttattgtnat tgtaaaatac attgaatttt ctgtatactc
  tgattacata catttatect ttaaaaaaga tgtaaatett aatttttatg ceatetatta
                                                                              60
  atttaccaat gagttacctt gtaaatgaga agtcatgata gcactgaatt ttaactagtt
                                                                             120
                                                                             180
  ttgacttcta agtttggt
                                                                             198
        <210> 59
        <211> 330
        <212> DNA
        <213> Homo sapien
        <400> 59
 acaacaaatg ggttgtgagg aagtcttatc agcaaaactg gtgatggcta ctgaaaagat
 ccattgaaaa ttatcattaa tgattttaaa tgacaagtta tcaaaaactc actcaatttt
                                                                              60
                                                                             120
 cacctgtgct agcttgctaa aatgggagtt aactctagag caaatatagt atcttctgaa tacagtcaat aaatgacaaa gccagggcct acaggtggtt tccagacttt ccagacccag
                                                                            180
 cagaaggaat ctattttatc acatggatet cegtetgtge tcaaaatace taatgatatt
                                                                            240
                                                                            300
. tttcgtcttt attggacttc tttgaagagt
                                                                            330
        <210> 60
        <211> 175
        <212> DNA
       <213> Homo sapien
       <400> 60
 accytygyty cettetacat teetgacyge teetteacea acatetyytt etaettegge
 gtcgtgggct ccttcctctt catcctcatc cagctggtgc tgctcatcga ctttgcgcac
                                                                             60
 tectggaace ageggtgget gggcaaggee gaggagtgeg attecegtge etggt
                                                                            120
                                                                            175
       <210> 61
       <211> 154
       <212> DNA
       <213> Homo sapien
       <400> 61
accccacttt teeteetgtg ageagtetgg actteteact getacatgat gagggtgagt
ggttgttgct cttcaacagt atcctccct ttccggatct gctgagccgg acagcagtge
                                                                            60
                                                                            120
tggactgcac agccccgggg ctccacattg ctgt
                                                                           154
       <210> 62
       <211> 30
       <212> DNA
       <213> Homo sapien
       <400> 62
cgctcgagcc ctatagtgag tcgtattaga
                                                                            30
      <210> 63
      <211> 89
      <212> DNA
      <213> Homo sapien
      <400> 63
```

```
acaagtcatt tcagcaccct ttgctcttca aaactgacca tcttttatat ttaatgcttc
                                                                               60
                                                                               89
ctgtatgaat aaaaatggtt atgtcaagt
      <210> 64
      <211> 97
      <212> DNA
      <213> Homo sapien
      <400> 64
accggagtaa ctgagtcggg acgctgaatc tgaatccacc aataaataaa ggttctgcag
                                                                               60
                                                                               97
aatcagtgca tccaggattg gtccttggat ctggggt
      <210> 65
      <211> 377
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
       <222> (1) ... (377)
      <223> n = A, T, C or G
       <400> 65
                                                                               60
acaacaanaa ntcccttctt taggccactg atggaaacct ggaaccccct tttgatggca
gcatggcgtc ctaggccttg acacagcggc tggggtttgg gctntcccaa accgcacacc ccaaccctgg tctacccaca nttctggcta tgggctgtct ctgccactga acatcagggt
                                                                              120
                                                                              180
                                                                              240
teggteataa natgaaatee caanggggae agaggteagt agaggaaget caatgagaaa
                                                                              300
ggtgctgttt gctcagccag aaaacagctg cctggcattc gccgctgaac tatgaacccg
tgggggtgaa ctaccccan gaggaatcat gcctgggcga tgcaanggtg ccaacaggag
                                                                              360
                                                                              377
gggcgggagg agcatgt
       <210> 66
       <211> 305
       <212> DNA
       <213> Homo sapien
                                                                               60°
acgcctttcc ctcagaattc agggaagaga ctgtcgcctg ccttcctccg ttgttgcgtg
agaaccegtg tgccccttcc caccatatcc accctcgctc catctttgaa ctcaaacacg
                                                                              120
aggaactaac tgcaccctgg tcctctcccc agtccccagt tcaccctcca tccctcacct tcctccactc taagggatat caacactgcc cagcacaggg gccctgaatt tatgtggttt
                                                                              180
                                                                              240
ttatatattt tttaataaga tgcactttat gtcattttt aataaagtct gaagaattac
                                                                              300
                                                                              305
tgttt
       <210> 67
       <211> 385
       <212> DNA
       <213> Homo sapien
 actacacaca ctccacttgc ccttgtgaga cactttgtcc cagcacttta ggaatgctga
                                                                               60
 ggtcggacca gccacatctc atgtgcaaga ttgcccagca gacatcaggt ctgagagttc
                                                                              120
 cccttttaaa aaaggggact tgcttaaaaa agaagtctag ccacgattgt gtagagcagc
                                                                              180
 tgtgctgtgc tggagattca cttttgagag agttctcctc tgagacctga tctttagagg
                                                                              240
                                                                              300
 ctgggcagtc ttgcacatga gatggggctg gtctgatctc agcactcett agtctgcttg
 ceteteceag ggeeceagee tggecacace tgettacagg geacteteag atgeceatae
                                                                              360
                                                                              385
 catagtttct gtgctagtgg accgt
       <210> 68
        <211> 73
        <212> DNA
        <213> Homo sapien
```

```
<400> 68
 acttaaccag atatatttt accccagatg gggatattct ttgtaaaaaa tgaaaataaa
                                                                          60
 gtttttttaa tgg
                                                                          73
        <210> 69
        <211> 536
        <212> DNA
        <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(536)
       <223> n = A, T, C or G
       <400> 69
 actagtccag tgtggtggaa ttccattgtg ttgggggctc tcaccctcct ctcctgcagc
                                                                          60
 tccagetttg tgetetgeet etgaggagae catggeecag catetgagta ecetgetget
                                                                         120
 cctgctggcc accetagetg tggccctggc ctggagcccc aaggaggagg ataggataat
                                                                         180
 cccgggtggc atctataacg cagacctcaa tgatgagtgg gtacagcgtg cccttcactt
 cgccatcage gagtataaca aggccaccaa agatgactac tacagacgte egetgegggt
                                                                         240
                                                                         300
 actaagagcc aggcaacaga ccgttggggg ggtgaattac ttcttcgacg tagaggtggg
 ccgaaccata tgtaccaagt cccagcccaa cttggacacc tgtgccttcc atgaacagcc
                                                                        360
                                                                        420
 agaactgcag aagaaacagt tgtgctcttt cgagatctac gaagttccct ggggagaaca
                                                                        480
 gaangteeet gggtgaaate caggtgteaa gaaateetan ggatetgttg ecagge
                                                                        536
       <210> 70
       <211> 477
       <212> DNA
       <213> Homo sapien
      <400> 70
 atgaccecta acaggggeee teteageeet ectaatgace teeggeetag ceatgtgatt
                                                                         60
tcacttccac tccataacgc tcctcatact aggcctacta accaacacac taaccatata
                                                                        120
ccaatgatgg cgcgatgtaa cacgagaaag cacataccaa ggccaccaca caccacctgt
                                                                        180
ccaaaaaggc cttcgatacg ggataatcct atttattacc tcagaagttt ttttcttcgc
                                                                        240
agggattttt ctgagccttt taccactcca gcctagcccc taccccccaa ctaggagggc
                                                                        300
actggccccc aacaggcatc accccgctaa atcccctaga agtcccactc ctaaacacat
                                                                        360
cegtattact egcatcagga gtatcaatca ectgagetca ecatagteta atagaaaaca
                                                                        420
accgaaacca aattattcaa agcactgctt attacaattt tactgggtct ctatttt
                                                                        477
       <210> 71
      <211> 533
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1) ... (533)
      <223> n = A, T, C or G
agagctatag gtacagtgtg atctcagctt tgcaaacaca ttttctacat agatagtact
                                                                        60
aggtattaat agatatgtaa agaaagaaat cacaccatta ataatggtaa gattggttta
                                                                       120
tgtgatttta gtggtatttt tggcaccctt atatatgttt tccaaacttt cagcagtgat
                                                                       180
attatttcca taacttaaaa agtgagtttg aaaaagaaaa tctccagcaa gcatctcatt
                                                                       240
taaataaagg tttgtcatct ttaaaaatac agcaatatgt gacttttaa aaaagctgtc
                                                                       300
aaataggtgt gaccctacta ataattatta gaaatacatt taaaaaacatc gagtacctca
                                                                       360
agtcagtttg ccttgaaaaa tatcaaatat aactcttaga gaaatgtaca taaaagaatg
                                                                       420
cttcgtaatt ttggagtang aggttccctc ctcaattttg tatttttaaa aagtacatgg
                                                                       480
taaaaaaaa aattcacaac agtatataag gctgtaaaat gaagaattct gcc
                                                                       533
      <210> 72
```

```
<211> 511
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(511)
      <223> n = A, T, C or G
      <400> 72
                                                                         60
tattacggaa aaacacacca cataattcaa ctancaaaga anactgcttc agggcgtgta
aaatgaaagg cttccaggca gttatctgat taaagaacac taaaagaggg acaaggctaa
                                                                        120
aagccgcagg atgtctacac tatancaggc gctatttggg ttggctggag gagctgtgga aaacatggan agattggtgc tgganatcgc cgtggctatt cctcattgtt attacanagt
                                                                        180
                                                                        240
gaggttetet gtgtgeccae tggtttgaaa accgttetne aataatgata gaatagtaca
                                                                        300
cacatgagaa ctgaaatggc ccaaacccag aaagaaagcc caactagatc ctcagaanac
                                                                        360
gettetaggg acaataaccg atgaagaaaa gatggcetee ttgtgcecce gtetgttatg
                                                                        420
atttctctcc attgcagcna naaacccgtt cttctaagca aacncaggtg atgatggcna
                                                                        480
                                                                        511
aaatacaccc cctcttgaag naccnggagg a
      <210> 73
      <211> 499
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(499)
      <223> n = A, T, C or G
      <400> 73
                                                                         60
cagtgccagc actggtgcca gtaccagtac caataacagt gccagtgcca gtgccagcac
cagtggtggc ttcagtgctg gtgccagcct gaccgccact ctcacatttg ggctcttcgc
                                                                        120
tggccttggt ggagctggtg ccagcaccag tggcagctct ggtgcctgtg gtttctccta
                                                                        180
                                                                        240
caagtgagat titagatatt gttaatcctg ccagtctttc tcttcaagcc agggtgcatc
ctcagaaacc tactcaacac agcactctag gcagccacta tcaatcaatt gaagttgaca
                                                                        300
                                                                        360
420
antitagagg gcccgtttaa acccgctgat cagcctcgac tgtgccttct anttgccagc
catctgttgt ttgcccctcc cccgntgcct tccttgaccc tggaaagtgc cactcccact
                                                                        480
                                                                        499
gtcctttcct aantaaaat
      <210> 74
      <211> 537
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (537)
       <223> n = A, T, C or G
       <400> 74
 tttcatagga gaacacactg aggagatact tgaagaattt ggattcagcc gcgaagagat
                                                                         60
                                                                        120
ttatcagett aactcagata aaatcattga aagtaataag gtaaaagcta gtetetaact
                                                                        180
tccaggccca cggctcaagt gaatttgaat actgcattta cagtgtagag taacacataa
                                                                        240
 cattgtatgc atggaaacat ggaggaacag tattacagtg tcctaccact ctaatcaaga
                                                                        300
 aaagaattac agactctgat tctacagtga tgattgaatt ctaaaaatgg taatcattag
                                                                        360
 ggcttttgat ttataanact ttgggtactt atactaaatt atggtagtta tactgccttc
 cagtttgctt gatatatttg ttgatattaa gattcttgac ttatattttg aatgggttct
                                                                        420
 actgaaaaan gaatgatata ttcttgaaga catcgatata catttattta cactcttgat
                                                                        480
                                                                        537
 tctacaatgt agaaaatgaa ggaaatgccc caaattgtat ggtgataaaa gtcccgt
```

```
<210> 75
        <211> 467
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1) ... (467)
        <223> n = A, T, C or G
 caaanacaat tgttcaaaag atgcaaatga tacactactg ctgcagctca caaacacctc
                                                                                  60
 tgcatattac acgtacetec tectgetect caagtagtgt ggtetatttt gecateatea
 cctgctgtct gcttagaaga acggctttct gctgcaangg agagaaatca taacagacgg
                                                                                 120
                                                                                180
 tggcacaagg aggccatcit ttcctcatcg gttattgtcc ctagaagcgt cttctgagga
                                                                                240
 tctagttggg ctttctttct gggtttgggc catttcantt ctcatgtgtg tactattcta tcattattgt ataacggttt tcaaaccngt gggcacncag agaacctcac tctgtaataa
                                                                                300
                                                                                360
 caatgaggaa tagccacggt gatctccagc accaaatctc tccatgttnt tccagagctc ctccagccaa cccaaatagc cgctgctatn gtgtagaaca tccctgn
                                                                                420
                                                                                467
        <210> 76
        <211> 400
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1)...(400)
        <223> n = A, T, C or G
        <400> 76
aagctgacag cattcgggcc gagatgtctc gctccgtggc cttagctgtg ctcgcgctac
                                                                                 60
tctctctttc tggcctggag gctatccagc gtactccaaa gattcaggtt tactcacgtc
atccagcaga gaatggaaag tcaaatttcc tgaattgcta tgtgtctggg tttcatccat
                                                                                120
                                                                                180
ccgacattga agttgactta ctgaagaatg gagagagaat tgaaaaagtg gagcattcag acttgtcttt cagcaaggac tggtctttct atctcttgta ctacactgaa ttcacccca
                                                                               240
ctgaaaaga tgagtatgcc tgccgtgtga accatgtgac tttgtcacag cccaagatng
                                                                                300
                                                                               360
ttnagtggga tcganacatg taagcagcan catgggaggt
                                                                               400
       <210> 77
       <211> 248
       <212> DNA
       <213> Homo sapien
       <400> 77
ctggagtgcc ttggtgtttc aagcccctgc aggaagcaga atgcaccttc tgaggcacct
ccagctgccc cggcggggga tgcgaggctc ggagcaccct tgcccggctg tgattgctgc
                                                                                60
                                                                               120
caggicactgt teateteage tittetgtee etttgetee ggcaageget tetgetgaaa
                                                                               180
gttcatatct ggagcctgat gtcttaacga ataaaggtcc catgctccac ccgaaaaaaa
                                                                               240
aaaaaaa
                                                                               248
       <210> 78
       <211> 201
       <212> DNA
       <213> Homo sapien
       <400> 78
actagtccag tgtggtggaa ttccattgtg ttgggcccaa cacaatggct acctttaaca
                                                                                60
tcacccagac cccgccctgc ccgtgcccca cgctgctgct aacgacagta tgatgcttac
                                                                               120
tetgetacte ggaaactatt tttatgtaat taatgtatge tttettgttt ataaatgeet
                                                                               180
gatttaaaaa aaaaaaaaa a
                                                                              201
```

```
<210> 79
      <211> 552
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (552)
      <223> n = A, T, C or G
      <400> 79
teettttgtt aggtttttga gacaaceeta gacetaaact gtgtcacaga ettetgaatg
tttaggcagt gctagtaatt tcctcgtaat gattctgtta ttactttcct attcttatt
                                                                        120
cctctttctt ctgaagatta atgaagttga aaattgaggt ggataaatac aaaaaggtag
                                                                        180
tgtgatagta taagtatcta agtgcagatg aaagtgtgtt atatatatcc attcaaaatt
                                                                        240
                                                                        300
atgcaagtta gtaattactc agggttaact aaattacttt aatatgctgt tgaacctact
ctgttccttg gctagaaaaa attataaaca ggactttgtt agtttgggaa gccaaattga
                                                                        360
taatattota tgttotaaaa gttgggotat acataaanta tnaagaaata tggaatttta
                                                                        420
ttcccaggaa tatggggttc atttatgaat antacccggg anagaagttt tgantnaaac
                                                                        480
cngttttggt taatacgtta atatgtcctn aatnaacaag gcntgactta tttccaaaaa
                                                                        540
                                                                        552
aaaaaaaaa aa
      <210> 80
      <211> 476
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(476)
      <223> n = A, T, C or G
      <400> 80
                                                                         60
acagggattt gagatgctaa ggccccagag atcgtttgat ccaaccctct tattttcaga
ggggaaaatg gggcctagaa gttacagagc atctagctgg tgcgctggca cccctggcct
                                                                        120
cacacagact cccgagtagc tgggactaca ggcacacagt cactgaagca ggccctgttt
                                                                        180
geaatteacg ttgccaccte caacttaaac attetteata tgtgatgtee ttagtcacta
                                                                        240
aggttaaact ttcccaccca gaaaaggcaa cttagataaa atcttagagt actttcatac
                                                                        300
tettetaagt cetettecag ceteactitg agteeteett gggggttgat aggaantnte
                                                                        360
tettggetit etcaataaaa tetetateea teteatgttt aattiggiae gentaaaaat
                                                                        420
gctgaaaaaa ttaaaatgtt ctggtttcnc tttaaaaaaa aaaaaaaaa aaaaaa
                                                                        476
      <210> 81
      <211> 232
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(232)
      <223> n = A, T, C or G
      <400> 81
                                                                         60
tttttttttg tatgccntcn ctgtggngtt attgttgctg ccaccctgga ggagcccagt
ttettetgta tettetttt etgggggate tteetggete tgeeceteea tteecageet
                                                                        120
                                                                        180
ctcatcccca tcttgcactt ttgctagggt tggaggcgct ttcctggtag cccctcagag
                                                                        232
actcagtcag cgggaataag tcctaggggt ggggggtgtg gcaagccggc ct
       <210> 82
       <211> 383
       <212> DNA
       <213> Homo sapien
```

```
<220>
         <221> misc_feature
         <222> (1) ... (383)
         <223> n = A, T, C or G
         <400> 82
  aggegggage agaagetaaa gecaaageee aagaagagtg geagtgeeag eactggtgee
                                                                                 60
  agtaccagta ccaataacat gccagtgcca gtgccagcac cagtggtggc ttcagtgctg
  gtgccagcct gaccgccact ctcacatttg ggctcttcgc tggccttggt ggagctggtg
                                                                                120
                                                                                180
  ccagcaccag tggcagctct ggtgcctgtg gtttctccta caagtgagat tttagatatt
                                                                                240
  gttaateetg ecagtettte tetteaagee agggtgeate eteagaaace tacteaacae
                                                                                300
  agcactetng geagecacta teaateaatt gaagtigaca etetgeatta aatetatttg
                                                                                360
  ccatttcaaa aaaaaaaaa aaa
                                                                                383
         <210> 83
         <211> 494
         <212> DNA
         <213> Homo sapien
         <220>
        <221> misc_feature
         <222> (1)...(494)
        <223> n = A, T, C or G
        <400> 83
. accgaattgg gaccgctggc ttataagcga tcatgtcctc cagtattacc tcaacgagca
                                                                                60
 gggagatcga gtctatacgc tgaagaaatt tgacccgatg ggacaacaga cctgctcagc
                                                                               120
 ccatcetget eggttetece cagatgacaa atactetega caccgaatca ecatcaagaa
                                                                               180
 acgetteaag gtgeteatga eccageaace gegeeetgte etetgagggt eettaaactg
 atgtetttte tgecacetgt taccectegg agacteegta accaaactet teggactgtg
                                                                               240
                                                                               300
 agccctgatg cctttttgcc agccatactc tttggcntcc agtctctcgt ggcgattgat
                                                                               360
 tatgcttgtg tgaggcaatc atggtggcat cacccatnaa gggaacacat ttgantttt tttcncatat tttaaattac naccagaata nttcagaata aatgaattga aaaactctta
                                                                               420
                                                                               480
 aaaaaaaaa aaaa
                                                                               494
        <210> 84
        <211> 380
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc feature
        <222> (1)...(380)
        <223> n = A, T, C or G
        <400> 84
 gctggtagcc tatggcgtgg ccacggangg gctcctgagg cacgggacag tgacttccca agtatcctgc gccgcgtctt ctaccgtccc tacctgcaga tcttcgggca gattccccag
                                                                               60
                                                                              120
 gaggacatgg acgtggccct catggagcac agcaactgct cgtcggagcc cggcttctgg
                                                                              180
 gcacaccctc ctggggccca ggcgggcacc tgcgtctccc agtatgccaa ctggctggtg
                                                                              240
 gtgctgctcc tegtcatett cetgetegtg gccaacatec tgctggtcac ttgctcattg
                                                                              300
 ccatgitcag tracacatte ggeaaagtac agggeaacag cnatetetac tgggaaggee
                                                                              360
 agcgttnccg cctcatccgg
                                                                              380
       <210> 85
       <211> 481
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
```

```
<222> (1)...(481)
      <223> n = A, T, C \text{ or } G
      <400> 85
gagttagete etecacaace ttgatgaggt egtetgeagt ggeetetege tteatacege
                                                                            60
tnecategte atactgtagg tttgccacca cetectgeat ettggggegg etaatateca
                                                                          120
ggaaactete aateaagtea cegtenatna aacetgtgge tggttetgte tteegetegg
                                                                          180
tgtgaaagga totocagaag gagtgotoga tottococac acttttgatg actttattga
                                                                          240
gtcgattctg catgtccagc aggaggttgt accagctctc tgacagtgag gtcaccagcc
                                                                          300
ctatcatgcc nttgaacgtg ccgaagaaca ccgagccttg tgtggggggt gnagtctcac
                                                                          360
ccagattctg cattaccaga nagccgtggc aaaaganatt gacaactcgc ccaggnngaa
                                                                           420
aaagaacacc teetggaagt getngeeget cetegteent tggtggnnge gentneettt
                                                                           480
                                                                           481
      <210> 86
      <211> 472
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (472)
      <223> n = A, T, C or G
      <400> 86
                                                                            60
aacatcttcc tgtataatgc tgtgtaatat cgatccgatn ttgtctgctg agaattcatt
acttggaaaa gcaacttnaa gcctggacac tggtattaaa attcacaata tgcaacactt taaacagtgt gtcaatctgc tcccttactt tgtcatcacc agtctgggaa taagggtatg
                                                                           120
                                                                           180
                                                                           240
ccctattcac acctgttaaa agggcgctaa gcatttttga ttcaacatct tttttttga
cacaagteeg aaaaaageaa aagtaaacag tinttaatit gitageeaat teactitett
                                                                           300
catgggacag agccatttga tttaaaaagc aaattgcata atattgagct ttgggagctg
                                                                           360
                                                                           420
atatningage ggaagantag cetttetaet teaceagaca caacteettt catattggga
tgttnacnaa agttatgtct cttacagatg ggatgctttt gtggcaattc tg
                                                                           472
       <210> 87
       <211> 413
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1)...(413)
       <223> n = A, T, C or G
       <400> 87
 agaaaccagt atctctnaaa acaacctctc ataccttgtg gacctaattt tgtgtgcgtg
                                                                            60
 tgtgtgtgcg cgcatattat atagacaggc acatcttttt tacttttgta aaagcttatg
                                                                           120
 cetettiggt atetatatet gigaaagtit taatgatetg ceataatgte tiggggacet
                                                                           180
 ttgtcttctg tgtaaatggt actagagaaa acacctatnt tatgagtcaa tctagttngt
                                                                           240
                                                                           300
 tttattcgac atgaaggaaa tttccagatn acaacactna caaactctcc cttgactagg
 ggggacaaag aaaagcanaa ctgaacatna gaaacaattn cctggtgaga aattncataa
                                                                           360
 acagaaattg ggtngtatat tgaaananng catcattnaa acgtttttt ttt
                                                                           413
       <210> 88
       <211> 448
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(448)
       <223> n = A, T, C or G
```

```
<400> 88
  cgcagcgggt cctctctatc tagctccagc ctctcgcctg ccccactccc cgcgtcccgc
                                                                             60
  gtectageen accatggeeg ggeeeetgeg egeeeegetg etectgetgg ecateetgge
                                                                            120
  cgtggccctg gccgtgagcc ccgcggccgg ctccagtccc ggcaagccgc cgcgcctggt
                                                                            180
 gggaggecea tggaccecge gtggaagaag aaggtgtgeg gegtgeactg gactttgeeg teggenanta caacaaacce geaacnactt ttacenagen egegetgeag gttgtgeege
                                                                            240
 cccaancaaa ttgttactng gggtaantaa ttcttggaag ttgaacctgg gccaaacnng
                                                                            300
                                                                            360
 tttaccagaa ccnagccaat tngaacaatt ncccctccat aacagcccct tttaaaaagg
                                                                            420
  gaancantce tgntcttttc caaatttt
                                                                            448
        <210> 89
        <211> 463
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1) ... (463)
       <223> n = A, T, C or G
       <400> 89
 gaattttgtg cactggccac tgtgatggaa ccattgggcc aggatgcttt gagtttatca
 gtagtgattc tgccaaagtt ggtgttgtaa catgagtatg taaaatgtca aaaaattagc
                                                                           120
 agaggtetag gtetgeatat cageagaeag tttgteegtg tattttgtag cettgaagtt
 ctcagtgaca agttnnttct gatgcgaagt tctnattcca gtgttttagt cctttgcatc
                                                                           180
                                                                           240
 tttnatgttn agacttgcct ctninaaait gcttttgtnt tcigcaggia ctatcigtgg
                                                                           300
 tttaacaaaa tagaannact tetetgettn gaanatitga atatettaca tetnaaaatn
 aattetetee ccatannaaa acceangeee ttggganaat ttgaaaaang gnteettenn
                                                                           360
                                                                           420
 aattennana antteagntn teatacaaca naaenggane eee
                                                                           463
       <210> 90
       <211> 400
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (400)
       <223> n = A, T, C or G
       <400> 90
agggattgaa ggtctnttnt actgtcggac tgttcancca ccaactctac aagttgctgt
cttccactca ctgtctgtaa gcntnttaac ccagactgta tcttcataaa tagaacaaat
                                                                            60
                                                                           120
tetteaceag teacatette taggacettt ttggatteag ttagtataag etetteeact
                                                                           180
tcctttgtta agacttcatc tggtaaagtc ttaagttttg tagaaaggaa tttaattgct
                                                                           240
cgttetetaa caatgteete teettgaagt atttggetga acaacceace tnaagteeet
                                                                          300
tigtgcatcc attttaaata tacttaatag ggcattggin cactaggita aattctgcaa
                                                                          360
gagtcatctg tctgcaaaag ttgcgttagt atatctgcca
                                                                          400
      <210> 91
      <211> 480
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (480)
      <223> n = A, T, C or G
      <400> 91
gageteggat ceaataatet ttgtetgagg geageacaea tatneagtge eatggnaact
                                                                           60
```

```
ggtctacccc acatgggagc agcatgccgt agntatataa ggtcattccc tgagtcagac
                                                                          120
atgeetettt gaetacegtg tgeeagtget ggtgattete acacacetee nneegetett
                                                                          180
                                                                          240
tgtggaaaaa ctggcacttg nctggaacta gcaagacatc acttacaaat tcacccacga
gacacttgaa aggtgtaaca aagcgactct tgcattgctt tttgtccctc cggcaccagt
                                                                          300
tgtcaatact aaccogctgg tttgcctcca tcacatttgt gatctgtagc tctggataca
                                                                          360
tetectgaca gtactgaaga acttettett ttgttteaaa ageaactett ggtgeetgtt
                                                                          420
ngatcaggtt cccatttccc agtccgaatg ttcacatggc atainttact tcccacaaaa
                                                                          480
      <210> 92
      <211> 477
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (477)
      <223> n = A, T, C or G
      <400> 92
atacagecea nateceacea egaagatgeg ettgttgaet gagaacetga tgeggteact
                                                                           60
ggtcccgctg tagccccage gactctccac ctgctggaag cggttgatgc tgcactcctt
                                                                          120
cccacgcagg cagcagcggg gccggtcaat gaactccact cgtggcttgg ggttgacggt
                                                                          180
taantgcagg aagaggctga ccacctcgcg gtccaccagg atgcccgact gtgcgggacc
                                                                          240
tgcagcgaaa ctcctcgatg gtcatgagcg ggaagcgaat gangcccagg gccttgccca gaacettccg cctgttctct ggcgtcacct gcagctgctg ccgctnacac tcggcctcgg
                                                                          300
                                                                          360
accageggae aaacggegtt gaacageege accteaegga tgeecantgt gtegegetee
                                                                          420
                                                                          477
aggaacggcn ccagcgtgtc caggtcaatg tcggtgaanc ctccgcgggt aatggcg
       <210> 93
       <211> 377
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1) ... (377)
       <223> n = A, T, C or G
       <400> 93
gaacggctgg accttgcctc gcattgtgct gctggcagga ataccttggc aagcagctcc
                                                                           60
 agtecgagea geeceagace getgeegeec gaagetaage etgeetetgg cetteceete
                                                                           120
 cgcctcaatg cagaaccant agtgggagca ctgtgtttag agttaagagt gaacactgtn
                                                                          180
 tgattttact tgggaatttc ctctgttata tagcttttcc caatgctaat ttccaaacaa
                                                                          240
 caacaacaaa ataacatgtt tgcctgttna gttgtataaa agtangtgat tctgtatnta
                                                                           300
 aagaaaatat tactgttaca tatactgctt gcaanttctg tatttattgg tnctctggaa
                                                                           360
                                                                           377
 ataaatatat tattaaa
       <210> 94
       <211> 495
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (495)
       <223> n = A, T, C or G
       <400> 94
 ccctttgagg ggttagggtc cagttcccag tggaagaaac aggccaggag aantgcgtgc
                                                                            60
 cgagctgang cagatttece acagtgacce cagagecetg ggetatagte tetgacceet
                                                                           120
 ccaaggaaag accaccttct ggggacatgg gctggagggc aggacctaga ggcaccaagg
                                                                           180
 gaaggcccca ttccggggct gttccccgag gaggaaggga aggggctctg tgtgccccc
                                                                           240
```

```
acgaggaana ggccctgant cctgggatca nacacccctt cacgtgtatc cccacacaaa
                                                                            300
  tgcaagetca ccaaggtece etetcagtee ettecetaca ecetgaacgg neactggeee
  acacccaccc agancancca cccgccatgg ggaatgtnct caaggaatcg cngggcaacg
                                                                            360
                                                                            420
  tggactetng tecennaagg gggeagaate tecaatagan gganngaace ettgetnana
                                                                            480
  aaaaaaana aaaaa
                                                                            495
        <210> 95
        <211> 472
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc feature
        <222> (1) ... (472)
        <223> n = A, T, C or G
        <400> 95
 ggttacttgg tttcattgcc accacttagt ggatgtcatt tagaaccatt ttgtctgctc
 cctctggaag ccttgcgcag agcggacttt gtaattgttg gagaataact gctgaatttt
                                                                            60
                                                                           120
 tagctgtttt gagttgattc gcaccactgc accacactc aatatgaaaa ctatttnact
 tatttattat cttgtgaaaa gtatacaatg aaaattttgt tcatactgta tttatcaagt atgatgaaaa gcaatagata tatattcttt tattatgttn aattatgatt gccattatta
                                                                           180
                                                                           240
 atcggcaaaa tgtggagtgt atgttctttt cacagtaata tatgcctttt gtaacttcac
                                                                           300
 ttggttattt tattgtaaat gaattacaaa attcttaatt taagaaaatg gtangttata
                                                                           360
                                                                           420
 tttanttcan taatttettt cettgtttac gttaattttg aaaagaatge at
                                                                           472
       <210> 96
       <211> 476
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(476)
       <223> n = A, T, C or G
       <400> 96
ctgaagcatt tettcaaact tntetaettt tgteattgat acetgtagta agttgacaat
gtggtgaaat ttcaaaatta tatgtaactt ctactagttt tactttctcc cccaagtctt
                                                                           60
                                                                          120
ttttaactca tgatttttac acacacatc cagaacttat tatatagcct ctaagtcttt
                                                                          180
attetteaca gragatgatg aaagagteet ceagtgtett gngcanaatg tretagntat
agetggatac atacngtggg agttetataa acteatacet cagtgggact naaccaaaat
                                                                          240
tgtgttagtc tcaattccta ccacactgag ggagcctccc aaatcactat attcttatct
                                                                          300
gcaggtactc ctccagaaaa acngacaggg caggcttgca tgaaaaagtn acatctgcgt
                                                                          360
                                                                          420
tacaaagtet atetteetea nangtetgin aaggaacaat tiaatettet agetti
                                                                          476
       <210> 97
       <211> 479
       <212> DNA
       <213> Homo sapien
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 Gly Gln Val Ile Asp Ala Asn Met Val Glu Gly Thr Ala Tyr Leu Ser
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 gaggtettat eteteagggg gggtttaagt geegttigea ataatgtegt ettatttati
 tagcggggtg aatattttat actgtaagtg agcaatcaga gtataatgtt tatggtgaca
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 3360
 3410
        <210> 111
        <211> 1289
        <212> DNA
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        <400> 111
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 ccatgcagtg cttcagcttc attaagacca tgatgatcct cttcaatttg ctcatctttc
                                                                            120
                                                                            180
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 tgaagatett egggeeactg tegteeagtg ecatgeagtt tgteaacgtg ggetaettee
                                                                            240
 tcatcgcagc cggcgttgtg gtctttgctc ttggtttcct gggctgctat ggtgctaaga
                                                                            300
                                                                            360
 ctgagagcaa gtgtgccctc gtgacgttct tcttcatcct cctcctcatc ttcattgctg
                                                                            420
 aggttgcage tgctgtggte gccttggtgt acaccacaat ggctgagcac ttcctgacgt
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 tgctggtagt gcctgccatc aagaaagatt atggttccca ggaagacttc actcaagtgt
 ggaacaccac catgaaaggg ctcaagtgct gtggcttcac caactatacg gattttgagg actcacccta cttcaaagag aacagtgcct ttcccccatt ctgttgcaat gacaacgtca
                                                                            540
                                                                            600
 ccaacacagc caatgaaacc tgcaccaagc aaaaggctca cgaccaaaaa gtagagggtt
                                                                            660
 gcttcaatca gcttttgtat gacatccgaa ctaatgcagt caccgtgggt ggtgtggcag
                                                                            720
                                                                            780
 ctggaattgg gggcctcgag ctggctgcca tgattgtgtc catgtatctg tactgcaatc
 tacaataagt ccacttetge etetgecact actgetgeca catgggaact gtgaagagge
                                                                           840
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                                                                           900
                                                                           960
                                                                          1020
                                                                          1080
                                                                          1140
tagtggtgat cccagtgctc tactggggga tgagagaaag gcattttata gcctgggcat
                                                                          1200
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tgttacaatg ttaaaaaaaa aaaaaaaaa
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Leu Gly Pro Lys Ile Val Ile Val Ser Lys Met Met Lys Asp Val Phe
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                                                       30
Phe Phe Leu Phe Phe Leu Gly Val Trp Leu Val Ala Tyr Gly Val Ala
                              40
Thr Glu Gly Leu Leu Arg Pro Arg Asp Ser Asp Phe Pro Ser Ile Leu
                         55
Arg Arg Val Phe Tyr Arg Pro Tyr Leu Gln Ile Phe Gly Gln Ile Pro
                     70
                                          75
Gln Glu Asp Met Asp Val Ala Leu Met Glu His Ser Asn Cys Ser Ser
                 85
                                      90
Glu Pro Gly Phe Trp Ala His Pro Pro Gly Ala Gln Ala Gly Thr Cys
                                  105
Val Ser Gln Tyr Ala Asn Trp Leu Val Val Leu Leu Val Ile Phe
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Leu Leu Val Ala Asn Ile Leu Leu Val Asn Leu Leu Ile Ala Met Phe Ser Tyr Thr Phe Gly Lys Val Gln Gly Asn Ser Asp Leu Tyr Trp Lys Ala Gln Arg Tyr Arg Leu Ile Arg Glu Phe His Ser Arg Pro Ala Leu Ala Pro Pro Phe Ile Val Ile Ser His Leu Arg Leu Leu Leu Arg Gln 190 1 Leu Cys Arg Arg Pro Arg Ser Pro Gln Pro Ser Ser Pro Ala Leu Glu His Phe Arg Val Tyr Leu Ser Lys Glu Ala Glu Arg Lys Leu Leu Thr Trp Glu Ser Val His Lys Glu Asn Phe Leu Leu Ala Arg Ala Arg Asp Lys Arg Glu Ser Asp Ser Glu Arg Leu Lys Arg Thr Ser Gln Lys Val Asp Leu Ala Leu Lys Gln Leu Gly His Ile Arg Glu Tyr Glu Gln Arg Leu Lys Val Leu Glu Arg Glu Val Gln Gln Cys Ser Arg Val Leu Gly Trp Val Ala Glu Ala Leu Ser Arg Ser Ala Leu Leu Pro Pro Gly Gly Pro Pro Pro Asp Leu Pro Gly Ser Lys Asp 

<210> 113

<211> 553

<212> PRT

<213> Homo sapien

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Cys Cys Pro Cys Arg Ala Arg Leu Ala Phe Arg Asn Leu Gly Ala Leu 245 250 Leu Pro Arg Leu His Gln Leu Cys Cys Arg Met Pro Arg Thr Leu Arg 265 Arg Leu Phe Val Ala Glu Leu Cys Ser Trp Met Ala Leu Met Thr Phe 280 285 Thr Leu Phe Tyr Thr Asp Phe Val Gly Glu Gly Leu Tyr Gln Gly Val 295 300 Pro Arg Ala Glu Pro Gly Thr Glu Ala Arg Arg His Tyr Asp Glu Gly 310 315 Val Arg Met Gly Ser Leu Gly Leu Phe Leu Gln Cys Ala Ile Ser Leu 330 Val Phe Ser Leu Val Met Asp Arg Leu Val Gln Arg Phe Gly Thr Arg 345 350 Ala Val Tyr Leu Ala Ser Val Ala Ala Phe Pro Val Ala Ala Gly Ala 360 365 Thr Cys Leu Ser His Ser Val Ala Val Val Thr Ala Ser Ala Ala Leu 375 380 Thr Gly Phe Thr Phe Ser Ala Leu Gln Ile Leu Pro Tyr Thr Leu Ala 390 Ser Leu Tyr His Arg Glu Lys Gln Val Phe Leu Pro Lys Tyr Arg Gly 405 410 Asp Thr Gly Gly Ala Ser Ser Glu Asp Ser Leu Met Thr Ser Phe Leu 420 425 Pro Gly Pro Lys Pro Gly Ala Pro Phe Pro Asn Gly His Val Gly Ala 435 440 445 Gly Gly Ser Gly Leu Leu Pro Pro Pro Pro Ala Leu Cys Gly Ala Ser 455 460 Ala Cys Asp Val Ser Val Arg Val Val Val Gly Glu Pro Thr Glu Ala 470 475 Arg Val Val Pro Gly Arg Gly Ile Cys Leu Asp Leu Ala Ile Leu Asp 485 490 Ser Ala Phe Leu Leu Ser Gln Val Ala Pro Ser Leu Phe Met Gly Ser 500 505 Ile Val Gln Leu Ser Gln Ser Val Thr Ala Tyr Met Val Ser Ala Ala 520 525 Gly Leu Gly Leu Val Ala Ile Tyr Phe Ala Thr Gln Val Val Phe Asp 535 540 Lys Ser Asp Leu Ala Lys Tyr Ser Ala 550

<210> 114 <211> 241

<212> PRT

<213> Homo sapien

<400> 114 Met Gln Cys Phe Ser Phe Ile Lys Thr Met Met Ile Leu Phe Asn Leu 10 Leu Ile Phe Leu Cys Gly Ala Ala Leu Leu Ala Val Gly Ile Trp Val 25 Ser Ile Asp Gly Ala Ser Phe Leu Lys Ile Phe Gly Pro Leu Ser Ser 40 Ser Ala Met Gln Phe Val Asn Val Gly Tyr Phe Leu Ile Ala Ala Gly 55 Val Val Phe Ala Leu Gly Phe Leu Gly Cys Tyr Gly Ala Lys Thr 65 70 75 80 Glu Ser Lys Cys Ala Leu Val Thr Phe Phe Phe Ile Leu Leu Ile 85 90 Phe Ile Ala Glu Val Ala Ala Ala Val Val Ala Leu Val Tyr Thr Thr 105 Met Ala Glu His Phe Leu Thr Leu Leu Val Val Pro Ala Ile Lys Lys

41

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120
        115
Asp Tyr Gly Ser Gln Glu Asp Phe Thr Gln Val Trp Asn Thr Thr Met
                                             140
                        135
   130
Lys Gly Leu Lys Cys Cys Gly Phe Thr Asn Tyr Thr Asp Phe Glu Asp
                                         155
                    150
Ser Pro Tyr Phe Lys Glu Asn Ser Ala Phe Pro Pro Phe Cys Cys Asn
                                                         175
                                     170
                165
Asp Asn Val Thr Asn Thr Ala Asn Glu Thr Cys Thr Lys Gln Lys Ala
                                                     190
                                185
            180
His Asp Gln Lys Val Glu Gly Cys Phe Asn Gln Leu Leu Tyr Asp Ile
                                                 205
                            200
Arg Thr Asn Ala Val Thr Val Gly Gly Val Ala Ala Gly Ile Gly Gly
                                             220
                        215
Leu Glu Leu Ala Ala Met Ile Val Ser Met Tyr Leu Tyr Cys Asn Leu
                                         235
                    230
225
Gln
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      <211> 366
      <212> DNA
      <213> Homo sapien
      <400> 115
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ttggtttgtg aatccatctt gctttttccc cattggaact agtcattaac ccatctctga
                                                                        180
actggtagaa aaacatctga agagctagtc tatcagcatc tgacaggtga attggatggt
                                                                        240
                                                                        300
tetcagaace atttcaccca gacagectgt ttetateetg tttaataaat tagtttgggt
tetetacatg cataacaaac cetgetecaa tetgteacat aaaagtetgt gaettgaagt
                                                                        360
                                                                        366
ttagtc
      <210> 116
      <211> 282
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (282)
      <223> n = A, T, C or G
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                                                                         60
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gagaaatgag atnaaacaca atnttataaa gtctacttag agaagatcaa gtgacctcaa
                                                                        120
agactttact attttcatat tttaagacac atgatttatc ctattttagt aacctggttc
                                                                        180
atacgttaaa caaaggataa tgtgaacagc agagaggatt tgttggcaga aaatctatgt
                                                                        240
                                                                        282
tcaatctnga actatctana tcacagacat ttctattcct tt
       <210> 117
       <211> 305
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (305)
       <223> n = A, T, C or G
       <400> 117
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 tatttateet eeeteetgaa acaattgeaa aataanacaa aatatatgaa acaattgeaa
                                                                        120
```

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aataaggcaa aatatatgaa acaacaggtc tcgagatatt ggaaatcagt caatgaagga
                                                                         180
 tactgatece tgateactgt cetaatgeag gatgtgggaa acagatgagg teacetetgt
                                                                         240
 gactgcccca gcttactgcc tgtagagagt ttctangctg cagttcagac agggagaaat
                                                                         300
                                                                         305
       <210> 118
       <211> 71
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
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       <223> n = A, T, C or G
       <400> 118
accaaggtgt ntgaatctct gacgtgggga tctctgattc ccgcacaatc tgagtggaaa
                                                                          60
aantcctggg t
                                                                          71
       <210> 119
       <211> 212
       <212> DNA
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       <220>
       <221> misc_feature
       <222> (1)...(212)
       <223> n = A, T, C or G
       <400> 119
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                                                                         60
gaaaatgggg tgaaattggc caactttcta tnaacttatg ttggcaantt tgccaccaac
                                                                        120
agtaagctgg cccttctaat aaaagaaaat tgaaaggttt ctcactaanc ggaattaant
                                                                        180
aatggantca aganactccc aggcctcagc gt
                                                                        212
      <210> 120
      <211> 90
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
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      <223> n = A, T, C or G
      <400> 120
actcgttgca natcaggggc cccccagagt caccgttgca ggagtccttc tggtcttgcc
                                                                         60
ctccgccggc gcagaacatg ctggggtggt
                                                                         90
      <210> 121
      <211> 218
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(218)
      <223> n = A, T, C or G
      <400> 121
tgtancgtga anacgacaga nagggttgtc aaaaatggag aanccttgaa gtcattttga
                                                                         60
gaataagatt tgctaaaaga tttggggcta aaacatggtt attgggagac atttctgaag
                                                                        120
```

atatncangt aaattangga atgaattcat agcatanact tcatgtgggg atancagcta	ggttcttttg	ggaattcctt	tacgatngcc	180 218
<210> 122 <211> 171 <212> DNA <213> Homo sapien				
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<pre>&lt;220&gt; &lt;221&gt; misc_feature &lt;222&gt; (1)(76) &lt;223&gt; n = A,T,C or G</pre>				-
<400> 123 tgtagcgtga agacnacaga atggtgtgtgt ttatcaanta ttgtgt	g ctgtgctatc	caggaacaca	tttattatca	60 76
<210> 124 <211> 131 <212> DNA <213> Homo sapien				-
<pre>&lt;400&gt; 124 acctttcccc aaggccaatg tcctgtgtgc caatgtgctg ggtcatatgg aggggaggac ttaagatttg t</pre>	c taactggccg g actctaaaat	gctgcaggac agccaatttt	agctgcaatt attctcttgg	60 120 131
<210> 125 <211> 432 <212> DNA <213> Homo sapien				
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<210> 126 <211> 112 <212> DNA <213> Homo sapien				
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<210> 127				

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<211> 54
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       <213> Homo sapien
       <400> 127
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                                                                             54
       <210> 128
       <211> 323
       <212> DNA
       <213> Homo sapien
       <400> 128
 acctcattag taattgtttt gttgtttcat ttttttctaa tgtctcccct ctaccagctc
                                                                             60
 acctgagata acagaatgaa aatggaagga cagccagatt tctcctttgc tctctgctca
                                                                            120
ttetetetga agtetaggtt acceattitg gggacceatt ataggeaata aacacagtte ecaaageatt tggacagttt ettgttgtgt tttagaatgg tttteetttt tettageett
                                                                            180
                                                                            240
ttcctgcaaa aggetcactc agtcccttgc ttgctcagtg gactgggctc cccagggcct
                                                                            300
aggctgcctt cttttccatg tcc
                                                                            323
       <210> 129
       <211> 192
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
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       <223> n = A, T, C or G
       <400> 129
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                                                                            60
tgaaaacaca ctaacataat ttntgtgaac catgatcaga tacaacccaa atcattcatc
                                                                           120
tagcacattc atctgtgata naaagatagg tgagtttcat ttccttcacg ttggccaatg
                                                                           180
gataaacaaa gt
                                                                           192
       <210> 130
      <211> 362
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(362)
      <223> n = A, T, C or G
      <400> 130
ccctttttta tggaatgagt agactgtatg tttgaanatt tanccacaac ctctttgaca
                                                                            60
tataatgacg caacaaaag gtgctgttta gtcctatggt tcagtttatg cccctgacaa
                                                                           120
gtttccattg tgttttgccg atcttctggc taatcgtggt atcctccatg ttattagtaa
                                                                           180
ttctgtattc cattttgtta acgcctggta gatgtaacct gctangaggc taactttata
                                                                           240
cttatttaaa agctcttatt ttgtggtcat taaaatggca atttatgtgc agcactttat
                                                                           300
tgcagcagga agcacgtgtg ggttggttgt aaagctcttt gctaatctta aaaagtaatg
                                                                          360
gg
                                                                          362
      <210> 131
      <211> 332
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
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<222> (1)...(332)
      <223> n = A, T, C or G
      <400> 131
ctttttgaaa gatcgtgtcc actcctgtgg acatcttgtt ttaatggagt ttcccatgca.
                                                                         60
gtangactgg tatggttgca gctgtccaga taaaaacatt tgaagagctc caaaatgaga
                                                                        120
gttctcccag gttcgccctg ctgctccaag tctcagcagc agcctctttt aggaggcatc
                                                                        180
ttctgaacta gattaaggca gcttgtaaat ctgatgtgat ttggtttatt atccaactaa
                                                                        240
cttccatctg ttatcactgg agaaagccca gactccccan gacnggtacg gattgtgggc
                                                                        300
                                                                        332
atanaaggat tgggtgaagc tggcgttgtg gt
      <210> 132
      <211> 322
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (322)
      <223> n = A,T,C or G
      <400> 132
                                                                         60
acttttgcca ttttgtatat ataaacaatc ttgggacatt ctcctgaaaa ctaggtgtcc
                                                                        120
agtggctaag agaactcgat ttcaagcaat tctgaaagga aaaccagcat gacacagaat
ctcaaattcc caaacagggg ctctgtggga aaaatgaggg aggacctttg tatctcgggt
                                                                        180
                                                                        240
tttagcaagt taaaatgaan atgacaggaa aggcttattt atcaacaaag agaagagttg
ggatgettet aaaaaaaact ttggtagaga aaataggaat getnaateet agggaageet
                                                                        300
                                                                        322
gtaacaatct acaattggtc ca
      <210> 133
      <211> 278
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (278)
      <223> n = A, T, C or G
      <400> 133
                                                                         60
acaagccttc acaagtttaa ctaaattggg attaatcttt ctgtanttat ctgcataatt
                                                                        120
cttgtttttc tttccatctg gctcctgggt tgacaatttg tggaaacaac tctattgcta
                                                                        180
ctatttaaaa aaaatcacaa atctttccct ttaagctatg ttnaattcaa actattcctg
ctattcctgt tttgtcaaag aaattatatt tttcaaaata tgtntatttg tttgatgggt
                                                                        240
                                                                        278
cccacgaaac actaataaaa accacagaga ccagcctg
      <210> 134
      <211> 121
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(121)
      <223> n = A, T, C or G
      <400> 134
                                                                         60
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tgattctctg aggitaaact tggttttcaa atgitatttt tacttgtatt ttgcttttgg
                                                                        120
                                                                        121
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<210> 135

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<211> 350
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(350)
       <223> n = A, T, C or G
       <400> 135
acttanaacc atgcctagca catcagaatc cctcaaagaa catcagtata atcctatacc
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 atancaagtg gtgactggtt aagcgtgcga caaaggtcag ctggcacatt acttgtgtgc
                                                                             120
 aaacttgata cttttgttct aagtaggaac tagtatacag tncctaggan tggtactcca
                                                                             180
gggtgccccc caactcctgc agccgctcct ctgtgccagn ccctgnaagg aactttcgct
                                                                             240
ccacctcaat caagecetgg gecatgetae etgeaattgg etgaacaaac gtttgetgag
                                                                             300
ttcccaagga tgcaaagcct ggtgctcaac tcctggggcg tcaactcagt
                                                                             350
       <210> 136
       <211> 399
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (399)
       <223> n = A, T, C or G
       <400> 136
tgtaccgtga agacgacaga agttgcatgg cagggacagg gcagggccga ggccagggtt
                                                                              60
gctgtgattg tatccgaata ntcctcgtga gaaaagataa tgagatgacg tgagcagcct
                                                                             120
gcagacttgt gtetgcette aanaagccag acaggaagge cetgeetgee tiggetetga
                                                                             180
cctggcggcc agccagccag ccacaggtgg gcttcttcct tttgtggtga caacnccaag
                                                                             240
aaaactgcag aggcccaggg tcaggtgtna gtgggtangt gaccataaaa caccaggtgc
                                                                            300
tcccaggaac ccgggcaaag gccatcccca cctacagcca gcatgcccac tggcgtgatg ggtgcagang gatgaagcag ccagntgttc tgctgtggt
                                                                             360
                                                                            399
       <210> 137
       <211> 165
       <212> DNA
       <213> Homo sapien
       <220>
      <221> misc feature
      <222> (1)...(165)
      <223> n = A, T, C or G
      <400> 137
actggtgtgg tngggggtga tgctggtggt anaagttgan gtgacttcan gatggtgtgt
                                                                             60
ggaggaagtg tgtgaacgta gggatgtaga ngttttggcc gtgctaaatg agcttcggga
                                                                            120
ttggctggtc ccactggtgg tcactgtcat tggtggggtt cctgt
                                                                            165
      <210> 138
      <211> 338
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      \langle 222 \rangle (1)...(338)
\langle 223 \rangle n = A,T,C or G
      <400> 138
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actcactgga atgccacatt cacaacagaa tcagaggtct gtgaaaacat taatggctcc
                                                                           60
ttaacttctc cagtaagaat cagggacttg aaatggaaac gttaacagcc acatgcccaa
                                                                          120
tgctgggcag tctcccatgc cttccacagt gaaagggctt gagaaaaatc acatccaatg
                                                                          180
tcatgtgttt ccagccacac caaaaggtgc ttggggtgga gggctggggg catananggt
                                                                          240
cangcetcag gaageetcaa gttecattea getttgecae tgtacattee ecatntttaa
                                                                          300
                                                                          338
aaaaactgat gcctttttt ttttttttt taaaattc
      <210> 139
      <211> 382
      <212> DNA
      <213> Homo sapien
      <400> 139
gggaatettg gtttttggca tetggtttge etatageega ggccaetttg acagaacaaa
                                                                            60
gaaagggact tegagtaaga aggtgattta cagecageet agtgeeegaa gtgaaggaga
                                                                           120
attcaaacag acctegteat teetggtgtg agectggteg geteacegee tateatetge atttgeetta eteaggtget accggaetet ggeecetgat gtetgtagtt teacaggatg
                                                                           180
                                                                           240
cettatttgt cttctacacc ccacagggcc ccctacttct tcggatgtgt ttttaataat
                                                                           300
                                                                           360
gtcagctatg tgccccatcc tccttcatgc cctccctccc tttcctacca ctgctgagtg
                                                                           382
qcctqqaact tgtttaaagt gt
       <210> 140
       <211> 200
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1) ... (200)
       <223> n = A, T, C or G
       <400> 140
accaaanctt ctttctgttg tgttngattt tactataggg gtttngcttn ttctaaanat
                                                                            60
                                                                           120
acttttcatt taacancttt tgttaagtgt caggctgcac tttgctccat anaattattg
ttttcacatt tcaacttgta tgtgtttgtc tcttanagca ttggtgaaat cacatatttt
                                                                           180
                                                                           200
 atattcagca taaaggagaa
       <210> 141
       <211> 335
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (335)
       <223> n = A, T, C or G
       <400> 141
                                                                            60
 actttattt caaaacactc atatgttgca aaaaacacat agaaaaataa agtttggtgg
 gggtgctgac taaacttcaa gtcacagact tttatgtgac agattggagc agggtttgtt
                                                                           120
 atgcatgtag agaacccaaa ctaatttatt aaacaggata gaaacagget gtetgggtga
                                                                           180
 aatggttctg agaaccatcc aattcacctg tcagatgctg atanactagc tcttcagatg
                                                                           240
 tttttctacc agttcagaga tnggttaatg actanttcca atggggaaaa agcaagatgg
                                                                           300
                                                                           335
 attcacaaac caagtaattt taaacaaaga cactt
       <210> 142
       <211> 459
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
```

```
<222> (1)...(459)
        <223> n = A, T, C or G
        <400> 142
 accaggttaa tattgccaca tatatccttt ccaattgcgg gctaaacaga cgtgtattta gggttgttta aagacaaccc agcttaatat caagagaaat tgtgaccttt catggagtat
                                                                              60
                                                                             120
 ctgatggaga aaacactgag tittgacaaa tottatttta ticagatagc agtotgatca
                                                                             180
 cacatggtcc aacaacactc aaataataaa tcaaatatna tcagatgtta aagattggtc
 ttcaaacatc atagccaatg atgccccgct tgcctataat ctctccgaca taaaaccaca
                                                                             240
 tcaacacctc agtggccacc aaaccattca gcacagcttc cttaactgtg agctgtttga
                                                                             300
 agctaccagt ctgagcacta ttgactatnt ttttcangct ctgaatagct ctagggatct
                                                                             360
                                                                             420
 cagcangggt gggaggaacc agctcaacct tggcgtant
                                                                            459
        <210> 143
       <211> 140
<212> DNA
       <213> Homo sapien
       <400> 143
 acatttcctt ccaccaagtc aggactcctg gcttctgtgg gagttcttat cacctgaggg
 aaatccaaac agteteteet agaaaggaat agtgteacca accceacca tetecetgag
                                                                             60
                                                                            120
 accatccgac ttccctgtgt
                                                                            140
       <210> 144
       <211> 164
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(164)
       <223> n = A, T, C or G
       <400> 144
acttcagtaa caacatacaa taacaacatt aagtgtatat tgccatcttt gtcattttct
                                                                            60
atctatacca ctctcccttc tgaaaacaan aatcactanc caatcactta tacaaatttg
                                                                           120
aggcaattaa tocatatttg tittcaataa ggaaaaaaag atgt
                                                                           164
      <210> 145
      <211> 303
       <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1) ... (303)
      <223> n = A, T, C or G
      <400> 145
acgtagacca tecaactitg tattigtaat ggcaaacate cagnagcaat tectaaacaa
actggagggt atttataccc aattatccca ttcattaaca tgccctcctc ctcaggctat
                                                                            60
                                                                           120
gcaggacage tatcataagt cggcccaggc atccagatac taccatttgt ataaacttca
                                                                           180
gtaggggagt ccatccaagt gacaggtcta atcaaaggag gaaatggaac ataagcccag
tagtaaaatn ttgcttagct gaaacagcca caaaagactt accgccgtgg tgattaccat
                                                                           240
                                                                           300
caa
                                                                           303
      <210> 146
      <211> 327
      <212> DNA
      <213> Homo sapien
      <220>
```

```
<221> misc feature
      <222> (1) ... (327)
      <223> n = A, T, C or G
      <400> 146
actgcagete aattagaagt ggtetetgae ttteateane tteteeetgg geteeatgae
                                                                         60
actggcctgg agtgactcat tgctctggtt ggttgagaga gctcctttgc caacaggcct
                                                                        120
ccaagtcagg gctgggattt gtttcctttc cacattctag caacaatatg ctggccactt
                                                                        180
cctgaacagg gagggtggga ggagccagca tggaacaagc tgccactttc taaagtagcc
                                                                        240
agacttgccc ctgggcctgt cacacctact gatgaccttc tgtgcctgca ggatggaatg
                                                                        300
                                                                        327
taggggtgag ctgtgtgact ctatggt
      <210> 147
     <211> 173
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (173)
      <223> n = A, T, C or G
      <400> 147
acattgtttt tttgagataa agcattgana gagctctcct taacgtgaca caatggaagg
                                                                         60
                                                                        120
actggaacac atacccacat cittgttctg agggataatt ttctgataaa gtcttgctgt
atattcaagc acatatgtta tatattattc agttccatgt ttatagccta gtt
                                                                        173
      <210> 148
      <211> 477
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1) ... (477)
      <223> n = A, T, C or G
      <400> 148
                                                                         60
acaaccactt tatctcatcg aatttttaac ccaaactcac tcactgtgcc tttctatcct
atgggatata ttatttgatg ctccatttca tcacacatat atgaataata cactcatact
                                                                        120
                                                                        180
geoctactae etgetgeaat aateacatte eetteetgte etgaceetga agecattggg
                                                                        240
gtggtcctag tggccatcag tccangcctg caccttgagc ccttgagctc cattgctcac
necaneceae etcacegace ceatectett acacagetae etcettgete tetaacecea
                                                                        300
tagattatnt ccaaattcag tcaattaagt tactattaac actctacccg acatgtccag
                                                                        360
caccactggt aagcettete cageeaacae acacacae acacacae acacacatat
                                                                        420
ccaggcacag gctacctcat cttcacaatc acccctttaa ttaccatgct atggtgg
                                                                        477
      <210> 149
      <211> 207
      <212> DNA
      <213> Homo sapien
      <400> 149
                                                                         60
acagttgtat tataatatca agaaataaac ttgcaatgag agcatttaag agggaagaac
                                                                        120
taacgtattt tagagagcca aggaaggttt ctgtggggag tgggatgtaa ggtggggcct
                                                                        180
gatgataaat aagagtcagc caggtaagtg ggtggtgtgg tatgggcaca gtgaagaaca
                                                                        207
tttcaggcag agggaacagc agtgaaa
      <210> 150
      <211> 111
      <212> DNA -
      <213> Homo sapien
```

```
<220>
       <221> misc_feature
       <222> (1) ... (111)
       <223> n = A, T, C or G
       <400> 150
 accttgattt cattgctgct ctgatggaaa cccaactatc taatttagct aaaacatggg
                                                                          60
 cacttaaatg tggtcagtgt ttggacttgt taactantgg catctttggg t
                                                                         111
       <210> 151
       <211> 196
       <212> DNA
       <213> Homo sapien
       <400> 151
 agcgcggcag gtcatattga acattccaga tacctatcat tactcgatgc tgttgataac
                                                                          60
 agcaagatgg ctttgaactc agggtcacca ccagctattg gaccttacta tgaaaaccat
                                                                         120
 ggataccaac cggaaaaccc ctatcccgca cagcccactg tggtccccac tgtctacgag
                                                                         180
 gtgcatccgg ctcagt
                                                                         196
       <210> 152
       <211> 132
       <212> DNA
       <213> Homo sapien
       <400> 152
acagcacttt cacatgtaag aagggagaaa ttcctaaatg taggagaaag ataacagaac
                                                                         60
cttccccttt tcatctagtg gtggaaacct gatgctttat gttgacagga atagaaccag
                                                                        120
gagggagttt gt
                                                                        132
      <210> 153
      <211> 285
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (285)
      <223> n = A, T, C or G
      <400> 153
acaanaccca nganaggcca ctggccgtgg tgtcatggcc tccaaacatg aaagtgtcag
                                                                         60
cttctgctct tatgtcctca tctgacaact ctttaccatt tttatcctcg ctcagcagga
                                                                        120
gcacatcaat aaagtccaaa gtcttggact tggccttggc ttggaggaag tcatcaacac
                                                                        180
cctggctagt gagggtgcgg cgccgctcct ggatgacggc atctgtgaag tcgtgcacca
                                                                        240
gtctgcaggc cctgtggaag cgccgtccac acggagtnag gaatt
                                                                        285
      <210> 154
      <211> 333
      <212> DNA
      <213> Homo sapien
      <400> 154
accacagtcc tgttgggcca gggcttcatg accctttctg tgaaaagcca tattatcacc
                                                                        60
accccaaatt tttccttaaa tatctttaac tgaaggggtc agcctcttga ctgcaaagac
                                                                       120
cctaagccgg ttacacagct aactcccact ggccctgatt tgtgaaattg ctgctgcctg
                                                                       180
attggcacag gagtcgaagg tgttcagctc ccctcctccg tggaacgaga ctctgatttg
                                                                       240
agtticacaa attctcgggc cacctcgtca ttgctcctct gaaataaaat ccggagaatg
                                                                       300
gtcaggcctg tctcatccat atggatcttc cgg
                                                                       333
      <210> 155
```

```
<211> 308
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (308)
      <223> n = A, T, C or G
      <400> 155
actggaaata ataaaaccca catcacagtg ttgtgtcaaa gatcatcagg gcatggatgg
                                                                         60
                                                                        120
gaaagtgctt tgggaactgt aaagtgccta acacatgatc gatgattttt gttataatat
ttgaatcacg gtgcatacaa actetectge etgetectee tgggeeceag ecceagecee
                                                                        180
atcacagete actgetetgt teatecagge ceageatgta gtggetgatt ettettgget
                                                                        240
gettttagee tecanaagtt tetetgaage caaccaaace tetangtgta aggeatgetg
                                                                        300
                                                                        308
gccctggt
      <210> 156
      <211> 295
      <212> DNA
      <213> Homo sapien
      <400> 156
accttgctcg gtgcttggaa catattagga actcaaaata tgagatgata acagtgccta
                                                                         60
ttattgatta ctgagagaac tgttagacat ttagttgaag attttctaca caggaactga
                                                                        120
gaataggaga ttatgtttgg ccctcatatt ctctcctatc ctccttgcct cattctatgt
                                                                        180
ctaatatatt ctcaatcaaa taaggttagc ataatcagga aatcgaccaa ataccaatat
                                                                        240
aaaaccagat gtctatcctt aagattttca aatagaaaac aaattaacag actat
                                                                        295
      <210> 157
      <211> 126
      <212> DNA
      <213> Homo sapien
acaagtttaa atagtgctgt cactgtgcat gtgctgaaat gtgaaatcca ccacatttct
                                                                         60
                                                                        120
gaagagcaaa acaaattctg tcatgtaatc tctatcttgg gtcgtgggta tatctgtccc
                                                                        126
cttagt
      <210> 158
      <211> 442
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (442)
      <223> n = A, T, C or G
      <400> 158
                                                                         60
acccactggt cttggaaaca cccatcctta atacgatgat ttttctgtcg tgtgaaaatg
aanccagcag gctgccccta gtcagtcctt ccttccagag aaaaagagat ttgagaaagt
                                                                        120
geetgggtaa tteaceatta attteetee ceaaactete tgagtettee ettaatattt
                                                                        180
ctggtggttc tgaccaaagc aggtcatggt ttgttgagca tttggggatcc cagtgaagta
                                                                        240
natgtitgta gccttgcata cttagccctt cccacgcaca aacggagtgg cagagtggtg
                                                                        300
ccaaccetgt tttcccagtc cacgtagaca gattcacagt gcggaattct ggaagctgga
                                                                        360
nacagacggg ctctttgcag agccgggact ctgagangga catgagggcc tctgcctctg
                                                                        420
                                                                        442
tgttcattct ctgatgtcct gt
       <210> 159
       <211> 498
       <212> DNA
```

```
<213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1) ... (498)
        <223> n = A, T, C or G
        <400> 159
 acttccaggt aacgttgttg tttccgttga gcctgaactg atgggtgacg ttgtaggttc
 tccaacaaga actgaggttg cagagcgggt agggaagagt gctgttccag ttgcacctgg
                                                                             60
                                                                            120
 gctgctgtgg actgttgttg attcctcact acggcccaag gttgtggaac tggcanaaag gtgtgttgtt gganttgagc tcgggcggct gtggtaggtt gtgggctctt caacaggggc
                                                                            180
                                                                            240
 tgctgtggtg ccgggangtg aangtgttgt gtcacttgag cttggccagc tctggaaagt
                                                                            300
 antanattet teetgaagge cagegettgt ggagetggea ngggteantg ttgtgtgtaa
                                                                            360
 cgaaccagtg ctgctgtggg tgggtgtana tcctccacaa agcctgaagt tatggtgtcn
                                                                            420
 teaggtaana atgtggttte agtgteeetg ggengetgtg gaaggttgta nattgteace
                                                                            480
 aagggaataa gctgtggt
                                                                           498
       <210> 160
       <211> 380
       <212> DNA
     <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(380)
       <223> n = A, T, C or G
       <400> 160
acctgcatcc agettccctg ccaaactcac aaggagacat caacctctag acagggaaac
agetteagga taetteeagg agacagagee accageagea aaacaaatat teeeatgeet
                                                                           120
ggagcatggc atagaggaag ctganaaatg tggggtctga ggaagccatt tgagtctggc
                                                                           180
cactagacat etcatcagec acttgtgtga agagatgece catgacecca gatgeetete
                                                                           240
ccaccettae etecatetea cacacttgag etttecacte tgtataatte taacateetg
                                                                           300
gagaaaaatg gcagtttgac cgaacctgtt cacaacggta gaggctgatt tctaacgaaa
                                                                           360
cttgtagaat gaagcctgga
                                                                           380
      <210> 161
       <211> 114
      <212> DNA
      <213> Homo sapien
      <400> 161
actccacate ecetetgage aggeggttgt egttcaaggt gtatttggee ttgeetgtea
                                                                           60
cactgtccac tggcccctta tccacttggt gcttaatccc tcgaaagagc atgt
                                                                          114
      <210> 162
      <211> 177
      <212> DNA
      <213> Homo sapien
      <400> 162
actttctgaa tcgaatcaaa tgatacttag tgtagtttta atatcctcat atatatcaaa
                                                                           60
gttttactac tctgataatt ttgtaaacca ggtaaccaga acatccagtc atacagcttt
                                                                          120
tggtgatata taacttggca ataacccagt ctggtgatac ataaaactac tcactgt
                                                                          177
      <210> 163
      <211> 137
      <212> DNA
      <213> Homo sapien
      <220>
```

```
<221> misc_feature
      <222> (1)...(137)
      <223> n = A, T, C or G
      <400> 163
catttataca gacaggcgtg aagacattca cgacaaaaac gcgaaattct atcccgtgac
                                                                         60
canagaagge agetacgget actectacat cetggegtgg gtggeetteg cetgeacett
                                                                        120
                                                                        137
catcagcggc atgatgt
      <210> 164
      <211> 469
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (469)
      <223> n = A, T, C or G
      <400> 164
cttatcacaa tgaatgttct cctgggcagc gttgtgatct ttgccacctt cgtgacttta
                                                                         60
tgcaatgcat catgctattt catacctaat gagggagttc caggagattc aaccaggaaa
                                                                        120
tgcatggatc tcaaaggaaa caaacaccca ataaactcgg agtggcagac tgacaactgt
                                                                        180
gagacatgca cttgctacga aacagaaatt tcatgttgca cccttgtttc tacacctgtg
                                                                        240
ggttatgaca aagacaactg ccaaagaatc ttcaagaagg aggactgcaa gtatatcgtg
                                                                        300
gtggagaaga aggacccaaa aaagacctgt tctgtcagtg aatggataat ctaatgtgct
                                                                        360
tetagtagge acagggetee caggecagge eteattetee tetggeetet aatagteaat
                                                                        420
                                                                        469
gattgtgtag ccatgcctat cagtaaaaag atntttgagc aaacacttt
      <210> 165
     · <211> 195
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(195)
      <223> n = A, T, C or G
      <400> 165
acagtttttt atanatatcg acattgccgg cacttgtgtt cagtttcata aagctggtgg
                                                                         60
atccgctgtc atccactatt ccttggctag agtaaaaatt attcttatag cccatgtccc
                                                                        120
                                                                        180
tgcaggccgc ccgcccgtag ttctcgttcc agtcgtcttg gcacacaggg tgccaggact
                                                                        195
tcctctgaga tgagt
      <210> 166
      <211> 383
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(383)
      <223> n = A, T, C or G
      <400> 166
acatettagt agtgtggcae atcaggggge cateagggte acagteacte atageetege
                                                                         60
cgaggtcgga gtccacacca ccggtgtagg tgtgctcaat cttgggcttg gcgcccacct
                                                                        120
ttggagaagg gatatgctgc acacacatgt ccacaaagcc tgtgaactcg ccaaagaatt
                                                                        180
tttgcagacc agcctgagca aggggcggat gttcagcttc agctcctcct tcgtcaggtg
                                                                        240
                                                                        300
gatgccaacc tcgtctangg tccgtgggaa gctggtgtcc acntcaccta caacctgggc
gangatetta taaagagget eenagataaa etecaegaaa ettetetggg agetgetagt
                                                                        360
```

```
nggggccttt ttggtgaact ttc
                                                                            383
        <210> 167
        <211> 247
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1)...(247)
        <223> n = A, T, C or G
       <400> 167
 acagagccag accttggcca taaatgaanc agagattaag actaaacccc aagtcganat
 tggagcagaa actggagcaa gaagtgggcc tggggctgaa gtagagacca aggccactgc
                                                                            60
 tatanccata cacagageca acteteagge caaggenatg gttggggeag anceagagae
                                                                            120
 tcaatctgan tccaaagtgg tggctggaac actggtcatg acanaggcag tgactctgac
                                                                            180
                                                                           240
 tgangtc
                                                                           247
       <210> 168
       <211> 273
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (273)
       <223> n = A, T, C or G
       <400> 168
acttctaagt tttctagaag tggaaggatt gtantcatcc tgaaaatggg tttacttcaa
aatccctcan cettgttett cacnactgte tatactgana gtgtcatgtt tecacaaagg
                                                                            60
gctgacacct gagcctgnat tttcactcat ccctgagaag ccctttccag tagggtgggc
                                                                           120
aatteceaac tteettgeea caagetteee aggetttete eeetggaaaa eteeagettg
                                                                           180
                                                                          240
agteceagat acacteatgg getgeeetgg gea
                                                                          273
       <210> 169
       <211> 431
       <212> DNA
       <213> Homo sapien
      <220>
      <221> misc feature
      \langle 222 \rangle (1)...(431)
\langle 223 \rangle n = A,T,C or G
      <400> 169
acageettgg ettececaaa etecacagte teagtgeaga aagateatet teeageagte
ageteagace agggteaaag gatgtgacat caacagttte tggttteaga acaggtteta
                                                                           60
ctactgtcaa atgacccccc atacttcctc aaaggctgtg gtaagttttg cacaggtgag
                                                                          120
ggcagcagaa agggggtant tactgatgga caccatcttc tctgtatact ccacactgac
                                                                          180
cttgccatgg gcaaaggccc ctaccacaaa aacaatagga tcactgctgg gcaccagctc
                                                                          240
acgcacatca ctgacaaccg ggatggaaaa agaantgcca actttcatac atccaactgg
                                                                          300
aaagtgatet gataetggat tettaattae etteaaaage ttetggggge cateagetge
                                                                          360
                                                                          420
tcgaacactg a
                                                                          431
      <210> 170
      <211> 266
      <212> DNA
      <213> Homo sapien
      <220>
```

```
<221> misc_feature
      <222> (1)...(266)
      <223> n = A, T, C or G
      <400> 170
acctgtgggc tgggctgtta tgcctgtgcc ggctgctgaa agggagttca gaggtggagc
                                                                          60
tcaaggagct ctgcaggcat tttgccaanc ctctccanag canagggagc aacctacact
                                                                         120
cccccctaga aagacaccag attggagtcc tgggaggggg agttggggtg ggcatttgat
                                                                         180
gtatacttgt cacctgaatg aangagccag agaggaanga gacgaanatg anattggcct
                                                                         240
                                                                         266
tcaaagctag gggtctggca ggtgga
      <210> 171
      <211> 1248
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(1248)
      <223> n = A, T, C or G
      <400> 171
ggcagccaaa tcataaacgg cgaggactgc agcccgcact cgcagccctg gcaggcggca
                                                                          60
ctggtcatgg aaaacgaatt gttctgctcg ggcgtcctgg tgcatccgca gtgggtgctg
                                                                         120
teagecgeae actgttteca gaagtgagtg cagageteet acaccategg getgggeetg
                                                                         180
cacagtettg aggeegacea agageeaggg ageeagatgg tggaggeeag eeteteegta eggeaceeag agtacaacag accettgete getaacgace teatgeteat caagttggae
                                                                         240
                                                                         300
gaateegtgt eegagtetga caccateegg ageateagea ttgettegea gtgeeetaee
                                                                         360
                                                                         420
geggggaact cttgcetegt ttctggctgg ggtctgctgg cgaacggcag aatgcctacc
gtgctgcagt gcgtgaacgt gtcggtggtg tctgaggagg tctgcagtaa gctctatgac
                                                                         480
                                                                         540
cegetgtace accecageat gttetgegee ggeggaggge aagaceagaa ggacteetge
aacggtgact ctggggggcc cctgatctgc aacgggtact tgcagggcct tgtgtctttc
                                                                         600
ggaaaagccc cgtgtggcca agttggcgtg ccaggtgtct acaccaacct ctgcaaattc
                                                                         660
actgagtgga tagagaaaac cgtccaggcc agttaactct ggggactggg aacccatgaa
                                                                         720
attgacccc aaatacatcc tgcggaagga attcaggaat atctgttccc agcccctcct
                                                                         780
cecteaggee caggagteca ggeececage ecetectece teaaaceaag ggtacagate
                                                                         840
cecagecet ceteceteag acceaggagt ceagacece cageceetee teceteagae
                                                                         900
ccaggagtcc ageceetect ceetcagace caggagteca gaceeeccag eceetectee
                                                                         960
ctcagaccca ggggtccagg cccccaaccc ctcctccctc agactcagag gtccaagccc
                                                                        1020
ccaaccente attecccaga cccagaggte caggteccag ecectentee etcagaccea
                                                                        1080
geggtecaat gecacetaga etntecetgt acacagtgee ecettgtgge acgttgacee
                                                                        1140
aaccttacca gttggttttt catttttngt ccctttcccc tagatccaga aataaagttt
                                                                         1200
                                                                        1248
aagagaagng caaaaaaaaa aaaaaaaaaa aaaaaaaaa
       <210> 172
       <211> 159
       <212> PRT
       <213> Homo sapien
       <220>
       <221> VARIANT
       <222> (1)...(159)
       <223> Xaa = Any Amino Acid
       <400> 172
 Met Val Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Pro
                                                           15
                                      10
  1
 Leu Leu Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser
                                                       30
                                  25
             20
 Glu Ser Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr
                                                   45
                             40
 Ala Gly Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Gly
```

```
50
                           55
  Arg Met Pro Thr Val Leu Gln Cys Val Asn Val Ser Val Val Ser Glu
                       70
                                           75
  Glu Val Cys Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met Phe
                  85
                                      90
  Cys Ala Gly Gly Gln Xaa Gln Xaa Asp Ser Cys Asn Gly Asp Ser
                                   105
  Gly Gly Pro Leu Ile Cys Asn Gly Tyr Leu Gln Gly Leu Val Ser Phe
                               120
                                                   125
  Gly Lys Ala Pro Cys Gly Gln Val Gly Val Pro Gly Val Tyr Thr Asn
                          135
                                              140
  Leu Cys Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Ala Ser
  145
                      150
                                           155
        <210> 173
        <211> 1265
        <212> DNA
        <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(1265)
       <223> n = A, T, C or G
       <400> 173
 ggcagcccgc actcgcagcc ctggcaggcg gcactggtca tggaaaacga attgttctgc
 tegggegtee tggtgeatee geagtgggtg etgteageeg cacactgttt ceagaactee
                                                                         60
 tacaccatcg ggctgggcct gcacagtett gaggccgacc aagagccagg gagccagatg
                                                                        120
 gtggaggcca gcctctccgt acggcaccca gagtacaaca gacccttgct cgctaacgac
                                                                        180
 ctcatgctca tcaagttgga cgaatccgtg tccgagtctg acaccatccg gagcatcagc
                                                                        240
 attgcttcgc agtgccctac cgcggggaac tcttgcctcg tttctggctg gggtctgctg
                                                                        300
 gcgaacggtg agctcacggg tgtgtgtctg ccctcttcaa ggaggtcctc tgcccagtcg
                                                                        360
 cgggggctga cccagagctc tgcgtcccag gcagaatgcc taccgtgctg cagtgcgtga
                                                                        420
 acgigicggt ggtgicigag gaggictgca gtaagctcta tgacccgctg taccacccca
                                                                        480
 gcatgttctg cgccggcgga gggcaagacc agaaggactc ctgcaacggt gactctgggg
                                                                        540
 ggcccctgat ctgcaacggg tacttgcagg gccttgtgtc tttcggaaaa gccccgtgtg
                                                                        600
 gccaagttgg cgtgccaggt gtctacacca acctctgcaa attcactgag tggatagaga
                                                                        660
 aaaccgtcca ggccagttaa ctctggggac tgggaaccca tgaaattgac ccccaaatac
                                                                        720
 atcctgcgga aggaattcag gaatatctgt tcccagcccc tcctccctca ggcccaggag
                                                                        780
tecaggecce cagecectee teceteaac caagggtaca gatececage cecteetee
                                                                        840
teagacecag gagtecagae eccecagece etectecete agacecagga gtecagece
                                                                        900
tecteentea gacceaggag tecagacece ceagecete eteceteaga cecaggggtt
                                                                        960
gaggececca accectecte etteagagte agaggtecaa gececeaace cetegtteee
                                                                       1020
cagacccaga ggtnnaggtc ccagccctc ttccntcaga cccagnggtc caatgccacc
                                                                       1080
tagattttcc ctgnacacag tgcccccttg tggnangttg acccaacctt accagttggt
                                                                       1140
ttitcatttt tngtccctti cccctagatc cagaaataaa gtttaagaga ngngcaaaaa
                                                                       1200
                                                                       1260
                                                                       1265
      <210> 174
      <211> 1459
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(1459)
      <223> n = A, T, C or G
      <400> 174
ggtcagccgc acactgtttc cagaagtgag tgcagagctc ctacaccatc gggctgggcc
tgcacagtet tgaggeegae caagageeag ggageeagat ggtggaggee ageeteteeg
                                                                        60
tacggcacce agagtacaac agaccettge tegetaacga ceteatgete atcaagttgg
                                                                       120
                                                                       180
```

240

```
acgaatccgt gtccgagtct gacaccatcc ggagcatcag cattgcttcg cagtgcccta
ccgcggggaa ctcttgcctc gtttctggct ggggtctgct ggcgaacggt gagctcacgg
                                                                            300
gtgtgtgtet gecetettea aggaggteet etgeceagte gegggggetg acceagaget
                                                                            360
                                                                            420
ctgcgtccca ggcagaatgc ctaccgtgct gcagtgcgtg aacgtgtcgg tggtgtctga
ngaggtetge antaagetet atgaceeget gtaceacee ancatgttet gegeeggegg
                                                                            480
                                                                            540
agggcaagac cagaaggact cctgcaacgt gagagagggg aaaggggagg gcaggcgact
                                                                            600
cagggaaggg tggagaaggg ggagacagag acacacaggg ccgcatggcg agatgcagag
atggagagac acacagggag acagtgacaa ctagagagag aaactgagag aaacagagaa ataaacacag gaataaagag aagcaaagga agagagaaac agaaacagac atggggaggc
                                                                            660
                                                                            720
                                                                            780
agaaacacac acacatagaa atgcagttga ccttccaaca gcatggggcc tgagggcggt
gacctccacc caatagaaaa tectettata aettttgaet eeccaaaaac etgactagaa
                                                                            840
atagectact gttgaegggg agecttacea ataacataaa tagtegattt atgeataegt
                                                                            900
tttatgcatt catgatatac ctttgttgga attttttgat atttctaagc tacacagttc
                                                                            960
                                                                           1020
gtctgtgaat ttttttaaat tgttgcaact ctcctaaaat ttttctgatg tgtttattga
aaaaatccaa gtataagtgg acttgtgcat tcaaaccagg gttgttcaag ggtcaactgt
                                                                           1080
gtacccagag ggaaacagtg acacagattc atagaggtga aacacgaaga gaaacaggaa
                                                                           1140
aaatcaagac totacaaaga ggotgggcag ggtggotcat gcotgtaato coagcacttt gggaggcgag gcaggcagat cacttgaggt aaggagttca agaccagcot ggccaaaatg
                                                                           1200
                                                                           1260
gtgaaateet gtetgtaeta aaaatacaaa agttagetgg atatggtgge aggegeetgt
                                                                           1320
aatcccagct acttgggagg ctgaggcagg agaattgctt gaatatggga ggcagaggtt
                                                                           1380
gaagtgagtt gagatcacac cactatactc cagctggggc aacagagtaa gactctgtct
                                                                           1440
                                                                           1459
caaaaaaaa aaaaaaaaa
       <210> 175
       <211> 1167
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (1167)
       <223> n = A, T, C or G
       <400> 175
gcgcagccct ggcaggcggc actggtcatg gaaaacgaat tgttctgctc gggcgtcctg
                                                                             60
gtgcatccgc agtgggtgct gtcagccgca cactgtttcc agaactccta caccatcggg
                                                                            120
                                                                            180
ctgggcctgc acagtcttga ggccgaccaa gagccaggga gccagatggt ggaggccagc
                                                                            240
ctctccgtac ggcacccaga gtacaacaga ctcttgctcg ctaacgacct catgctcatc
aagttggacg aatccgtgtc cgagtctgac accatccgga gcatcagcat tgcttcgcag
                                                                            300
                                                                            360
tgccctaccg cggggaactc ttgcctcgtn tctggctggg gtctgctggc gaacggcaga
                                                                            420
atgectaceg tgctgcactg cgtgaacgtg tcggtggtgt ctgaggangt ctgcagtaag
                                                                            480
ctctatgacc cgctgtacca ccccagcatg ttctgcgccg gcggagggca agaccagaag
gactoctgca acggtgacto tggggggccc ctgatetgca acgggtactt gcagggcctt
                                                                            540
gtgtctttcg gaaaagcccc gtgtggccaa cttggcgtgc caggtgtcta caccaacctc
                                                                            600
                                                                            660
tgcaaattca ctgagtggat agagaaaacc gtccagncca gttaactctg gggactggga
                                                                            720
acccatgaaa ttgaccccca aatacatcct gcggaangaa ttcaggaata tctgttccca
                                                                            780
geceteete ceteaggee aggagtecag gececeagee ceteeteet caaaccaagg
                                                                            840
gtacagatec ecageceete eteceteaga eccaggagte cagaceeece ageceetent
conteagace caggagteca geoectecte enteagacge aggagtecag accecccage
                                                                            900
cententeeg teagacecag gggtgeagge ecceaacece tenteentea gagteagagg tecaagecec caaceceteg teceagae ecagaggtne aggteecage eceteetee
                                                                            960
                                                                           1020
 tcagacccag cggtccaatg ccacctagan tntccctgta cacagtgccc ccttgtggca
                                                                           1080
                                                                           1140
ngttgaccca accttaccag ttggtttttc attttttgtc cctttcccct agatccagaa
                                                                           1167
 ataaagtnta agagaagcgc aaaaaaa
       <210> 176
       <211> 205
       <212> PRT
       <213> Homo sapien
       <220>
       <221> VARIANT
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<222> (1)...(205)
        <223> Xaa = Any Amino Acid
       <400> 176
 Met Glu Asn Glu Leu Phe Cys Ser Gly Val Leu Val His Pro Gln Trp
                                      10
 Val Leu Ser Ala Ala His Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu
                                  25
 Gly Leu His Ser Leu Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val
 Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Leu Leu
 Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu Ser
                     70
                                         75
 Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr Ala Gly
                                     90
 Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Gly Arg Met
                                 105
                                                      110
 Pro Thr Val Leu His Cys Val Asn Val Ser Val Val Ser Glu Xaa Val
                             120
 Cys Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met Phe Cys Ala
                         135
 Gly Gly Gln Asp Gln Lys Asp Ser Cys Asn Gly Asp Ser Gly Gly
                     150
                                         155
 Pro Leu Ile Cys Asn Gly Tyr Leu Gln Gly Leu Val Ser Phe Gly Lys
                 165
                                     170
Ala Pro Cys Gly Gln Leu Gly Val Pro Gly Val Tyr Thr Asn Leu Cys
             180
                                185
 Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Xaa Ser
         195
       <210> 177
       <211> 1119
       <212> DNA
       <213> Homo sapien
       <400> 177
gcgcactcgc agccctggca ggcggcactg gtcatggaaa acgaattgtt ctgctcgggc
gtcctggtgc atccgcagtg ggtgctgtca gccgcacact gtttccagaa ctcctacacc
                                                                       120
atcgggctgg gcctgcacag tcttgaggcc gaccaagagc cagggagcca gatggtggag
                                                                       180
gccagectet cegtacggca cccagagtac aacagaccet tgctcgctaa cgacctcatg
                                                                       240
ctcatcaagt tggacgaatc cgtgtccgag tctgacacca tccggagcat cagcattgct
                                                                       300
tegeagtgee ctacegeggg gaactettge etegtttetg getggggtet getggegaac
                                                                       360
gatgctgtga ttgccatcca gtcccagact gtgggaggct gggagtgtga gaagctttcc
                                                                       420
caaccetgge agggttgtac cattteggea acttecagtg caaggacgte etgetgeate
                                                                       480
ctcactgggt gctcactact gctcactgca tcacccggaa cactgtgatc aactagccag
                                                                       540
caccatagtt ctccgaagtc agactatcat gattactgtg ttgactgtgc tgtctattgt
                                                                       600
actaaccatg ccgatgttta ggtgaaatta gcgtcacttg gcctcaacca tcttggtatc
                                                                       660
cagttatect caetgaattg agattteetg etteagtgte agecatteee acataattte
                                                                       720
tgacctacag aggtgaggga tcatatagct cttcaaggat gctggtactc ccctcacaaa
                                                                       780
ttcatttctc ctgttgtagt gaaaggtgcg ccctctggag cctcccaggg tgggtgtgca
                                                                       840
ggtcacaatg atgaatgtat gatcgtgttc ccattaccca aagcctttaa atccctcatg
                                                                       900
ctcagtacac cagggcaggt ctagcatttc ttcatttagt gtatgctgtc cattcatgca
                                                                       960
accacctcag gactcctgga ttctctgcct agttgagctc ctgcatgctg cctccttggg
                                                                      1020
gaggtgaggg agagggccca tggttcaatg ggatctgtgc agttgtaaca cattaggtgc
                                                                      1080
ttaataaaca gaagctgtga tgttaaaaaa aaaaaaaaa
                                                                      1119
```

<210> 178 <211> 164 <212> PRT

<213> Homo sapien

```
<220>
      <221> VARIANT
      <222> (1)...(164)
      <223> Xaa = Any Amino Acid
      <400> 178
Met Glu Asn Glu Leu Phe Cys Ser Gly Val Leu Val His Pro Gln Trp
                                       10
1
Val Leu Ser Ala Ala His Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu
                                  25
                                                        30
             20
Gly Leu His Ser Leu Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val
                              40
                                                    45
Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Asn Arg Pro Leu Leu
                                               60
                         55
Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu Ser
                                           75
Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr Ala Gly
                                       90
                 85
Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Asp Ala Val
                                  105
                                                        110
             100
Ile Ala Ile Gln Ser Xaa Thr Val Gly Gly Trp Glu Cys Glu Lys Leu
                              120
                                                   125
        115
Ser Gln Pro Trp Gln Gly Cys Thr Ile Ser Ala Thr Ser Ser Ala Arg
                                               140
                          135
Thr Ser Cys Cys Ile Leu Thr Gly Cys Ser Leu Leu Leu Thr Ala Ser
                                           155
                     150
Pro Gly Thr Leu
      <210> 179
      <211> 250
      <212> DNA
      <213> Homo sapien
      <400> 179
                                                                            60
ctqqaqtqcc ttqqtqtttc aaqcccctgc aggaagcaga atgcaccttc tgaggcacct
ccagctgccc ccggccgggg gatgcgaggc tcggagcacc cttgcccggc tgtgattgct
                                                                           120
gccaggcact gttcatctca gcttttctgt ccctttgctc ccggcaagcg cttctgctga
                                                                           180
                                                                           240
aagttcatat ctggagcctg atgtcttaac gaataaaggt cccatgctcc acccgaaaaa
                                                                           250
aaaaaaaaa
      <210> 180
      <211> 202
      <212> DNA
      <213> Homo sapien
      <400> 180
                                                                            60
actagtccag tgtggtggaa ttccattgtg ttgggcccaa cacaatggct acctttaaca
tcacccagac cccgcccctg cccgtgcccc acgctgctgc taacgacagt atgatgctta ctctgctact cggaaactat ttttatgtaa ttaatgtatg ctttcttgtt tataaatgcc
                                                                           120
                                                                           180
                                                                           202
tgatttaaaa aaaaaaaaa aa
       <210> 181
       <211> 558
       <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(558)
      <223> n = A, T, C or G
```

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<400> 181
 tccytttgkt naggtttkkg agacamccck agacctwaan ctgtgtcaca gacttcyngg
                                                                           60
 aatgtttagg cagtgctagt aatttcytcg taatgattct gttattactt tcctnattct
                                                                          120
ttattcctct ttcttctgaa gattaatgaa gttgaaaatt gaggtggata aatacaaaaa ggtagtgtga tagtataagt atctaagtgc agatgaaagt gtgttatata tatccattca
                                                                          180
                                                                          240
 aaattatgca agttagtaat tactcagggt taactaaatt actttaatat gctgttgaac
                                                                          300
ctactctgtt ccttggctag aaaaaattat aaacaggact ttgttagttt gggaagccaa
                                                                          360
attgataata ttctatgttc taaaagttgg gctatacata aattattaag aaatatggaw
                                                                          420
ttttattccc aggaatatgg kgttcatttt atgaatatta cscrggatag awgtwtgagt
                                                                          480
aaaaycagtt ttggtwaata ygtwaatatg tcmtaaataa acaakgcttt gacttatttc
                                                                          540
caaaaaaaa aaaaaaaa
                                                                          558
       <210> 182
      <211> 479
       <212> DNA
       <213> Homo sapien
      <220>
      <221> misc_feature
       <222> (1)...(479)
      <223> n = A, T, C or G
      <400> 182
acagggwttk grggatgcta agsccccrga rwtygtttga tccaaccctg gcttwttttc
                                                                           60
agaggggaaa atggggccta gaagttacag mscatytagy tggtgcgmtg gcacccctgg
                                                                          120
cstcacacag astcccgagt agctgggact acaggcacac agtcactgaa gcaggccctg
                                                                          180
ttwgcaattc acgttgccac ctccaactta aacattcttc atatgtgatg tccttagtca
                                                                          240
ctaaggttaa actttcccac ccagaaaagg caacttagat aaaatcttag agtactttca
                                                                          300
tactmttcta agtcctcttc cagcctcact kkgagtcctm cytgggggtt gataggaant
                                                                          360
ntctcttggc tttctcaata aartctctat ycatctcatg tttaatttgg tacgcatara
                                                                          420
awtgstgara aaattaaaat gttctggtty mactttaaaa araaaaaaaa aaaaaaaaa
                                                                          479
      <210> 183
      <211> 384
      <212> DNA
      <213> Homo sapien
      <400> 183
aggcgggagc agaagctaaa gccaaagccc aagaagagtg gcagtgccag cactggtgcc
                                                                          60
agtaccagta ccaataacag tgccagtgcc agtgccagca ccagtggtgg cttcagtgct
                                                                         120
ggtgccagcc tgaccgccac tctcacattt gggctcttcg ctggccttgg tggagctggt
                                                                         180
gccagcacca gtggcagctc tggtgcctgt ggtttctcct acaagtgaga ttttagatat
                                                                         240
tgttaatcct gccagtcttt ctcttcaagc cagggtgcat cctcagaaac ctactcaaca
                                                                         300
cagcactcta ggcagccact atcaatcaat tgaagttgac actctgcatt aratctattt
                                                                         360
gccatttcaa aaaaaaaaaa aaaa
                                                                         384
      <210> 184
      <211> 496
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(496)
      <223> n = A, T, C or G
      <400> 184
accgaattgg gaccgctggc ttataagcga tcatgtyynt ccrgtatkac ctcaacgagc
                                                                          60
agggagateg agtetataeg etgaagaaat ttgaceegat gggacaacag acetgeteag
                                                                         120
cccatcctgc teggttetec ccagatgaca aatactetsg acaccgaatc accatcaaga
                                                                         180
aacgetteaa ggtgeteatg acceageaac egegeeetgt cetetgaggg tecettaaac
                                                                         240
tgatgtcttt tctgccacct gttacccctc ggagactccg taaccaaact cttcggactg
                                                                         300
```

```
tgagccctga tgcctttttg ccagccatac tctttggcat ccagtctctc gtggcgattg
                                                                        360
                                                                        420
attatgcttg tgtgaggcaa tcatggtggc atcacccata aagggaacac atttgacttt
                                                                        480
tttttctcat attttaaatt actacmagaw tattwmagaw waaatgawtt gaaaaactst
                                                                        496
taaaaaaaa aaaaaa
      <210> 185
      <211> 384
      <212> DNA
      <213> Homo sapien
      <400> 185
gctggtagcc tatggcgkgg cccacggagg ggctcctgag gccacggrac agtgacttcc
                                                                        60
caagtatcyt gcgcsgcgtc ttctaccgtc cctacctgca gatcttcggg cagattcccc
                                                                       120
aggaggacat ggacgtggcc ctcatggagc acagcaactg ytcgtcggag cccggcttct
                                                                       180
qqqcacaccc tcctqqqqcc caqqcqqqca cctqcqtctc ccaqtatqcc aactqqctqq
                                                                       240
                                                                       300
togtactact cotogtoato ttootgotog taggocaacat cotactagto aacttactoa
ttqccatqtt caqttacaca ttcggcaaag tacagggcaa cagcgatctc tactgggaag
                                                                       360
                                                                       384
gcgcagcgtt accgcctcat ccgg
      <210> 186
      <211> 577
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(577)
      <223> n = A, T, C or G
      <400> 186
                                                                        60
gagttagete etecaeaace ttgatgaggt egtetgeagt ggeetetege tteataeege
                                                                       120
thecategte atactgtagg tttgccacca cytectggca tettggggcg gentaatatt
ccaggaaact ctcaatcaag tcaccgtcga tgaaacctgt gggctggttc tgtcttccgc
                                                                       180
toggtgtgaa aggatotoco agaaggagtg otogatotto cocacacttt tgatgacttt
                                                                       240
attgagtcga ttctgcatgt ccagcaggag gttgtaccag ctctctgaca gtgaggtcac
                                                                       300
                                                                       360
cagccctatc atgccgttga mcgtgccgaa garcaccgag ccttgtgtgg gggkkgaagt
ctcacccaga ttctgcatta ccagagagcc gtggcaaaag acattgacaa actcgcccag
                                                                       420
gtggaaaaag amcameteet ggargtgetn geegeteete gtemgttggt ggeagegetw
                                                                       480
tccttttgac acacaaacaa gttaaaggca ttttcagccc ccagaaantt gtcatcatcc
                                                                       540
aagatntcgc acagcactna tccagttggg attaaat
                                                                       577
      <210> 187
      <211> 534
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(534)
      <223> n = A, T, C or G
      <400> 187
aacatcttcc tgtataatgc tgtgtaatat cgatccgatn ttgtctgstg agaatycatw
                                                                        60
actkqqaaaa qmaacattaa agcctggaca ctggtattaa aattcacaat atgcaacact
                                                                       120
                                                                       180
ttaaacaqtq tqtcaatctq ctcccyynac tttqtcatca ccaqtctqqq aakaaqqqta
tgccctattc acacctgtta aaagggcgct aagcattttt gattcaacat ctttttttt
                                                                       240
gacacaagto ogaaaaaago aaaagtaaao agttatyaat ttgttagooa attoacttto
                                                                       300
ttcatgggac agagccatyt gatttaaaaa gcaaattgca taatattgag cttygggagc
                                                                       360
tgatatttga gcggaagagt agcetttcta etteaceaga cacaacteee ttteatattg
                                                                       420
ggatgttnac naaagtwatg tototwacag atgggatgot titgtggcaa tictgttotg
                                                                       480
                                                                       534
aggatetece agtttattta ceaettgeae aagaaggegt tttetteete agge
```

```
<210> 188
       <211> 761
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (761)
       <223> n = A, T, C or G
       <400> 188
 agaaaccagt atctctnaaa acaacctctc ataccttgtg gacctaattt tgtgtgcgtg
                                                                            60
 tgtgtgtgcg cgcatattat atagacaggc acatcttttt tacttttgta aaagcttatg
                                                                           120
 cctctttggt atctatatct gtgaaagttt taatgatctg ccataatgtc ttggggacct
                                                                           180
 ttgtcttctg tgtaaatggt actagagaaa acacctatnt tatgagtcaa tctagttngt
                                                                           240
 tttattcgac atgaaggaaa tttccagatn acaacactna caaactctcc ctkgackarg
                                                                           300
 ggggacaaag aaaagcaaaa ctgamcataa raaacaatwa cctggtgaga arttgcataa
                                                                           360
acagaaatwr ggtagtatat tgaarnacag catcattaaa rmgttwtktt wttctccctt
                                                                           420
gcaaaaaaca tgtacngact tcccgttgag taatgccaag ttgtttttt tatnataaaa cttgcccttc attacatgtt tnaaagtggt gtggtgggcc aaaatattga aatgatggaa
                                                                          480
                                                                          540
ctgactgata aagctgtaca aataagcagt gtgcctaaca agcaacacag taatgttgac
                                                                          600
atgettaatt cacaaatget aattteatta taaatgtttg etaaaataca etttgaacta
                                                                          660
tttttctgtn ttcccagagc tgagatntta gattttatgt agtatnaagt gaaaaantac
                                                                          720
gaaaataata acattgaaga aaaananaaa aaanaaaaaa a
                                                                          761
       <210> 189
       <211> 482
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (482)
       <223> n = A, T, C or G
      <400> 189
ttttttttt tttgccgatn ctactatttt attgcaggan gtgggggtgt atgcaccgca
                                                                           60
caccggggct atnagaagca agaaggaagg agggagggca cagcccttg ctgagcaaca
                                                                          120
aagccgcctg ctgccttctc tgtctgtctc ctggtgcagg cacatgggga gaccttcccc
                                                                          180
aaggcagggg ccaccagtcc aggggtggga atacaggggg tgggangtgt gcataagaag
                                                                          240
tgataggcac aggccacccg gtacagaccc ctcggctcct gacaggtnga tttcgaccag
                                                                          300
gtcattgtgc cetgeccagg cacagegtan atetggaaaa gacagaatge ttteetttte
                                                                          360
aaatttggct ngtcatngaa ngggcanttt tccaanttng gctnggtctt ggtacncttg
                                                                          420
gttcggccca gctccncgtc caaaaantat tcacccnnct ccnaattgct tgcnggnccc
                                                                          480
CC
                                                                          482
      <210> 190
      <211> 471
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(471)
      <223> n = A,T,C or G
      <400> 190
ttttttttt ttttaaaaca gtttttcaca acaaaattta ttagaagaat agtggttttg
                                                                          60
aaaactctcg catccagtga gaactaccat acaccacatt acagctngga atgtnctcca
                                                                         120
aatgtctggt caaatgatac aatggaacca ttcaatctta cacatgcacg aaagaacaag
                                                                         180
cgcttttgac atacaatgca caaaaaaaaa aggggggggg gaccacatgg attaaaattt
                                                                         240
taagtactca tcacatacat taagacacag ttctagtcca gtcnaaaatc agaactgcnt
                                                                         300
```

```
tgaaaaattt catgtatgca atccaaccaa agaacttnat tggtgatcat gantnctcta
                                                                        360
ctacatcnac cttgatcatt gccaggaacn aaaagttnaa ancacncngt acaaaaanaa
                                                                        420
totgtaattn anttcaacct cogtacngaa aaatnttnnt tatacactco c
                                                                        471
      <210> 191
      <211> 402
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (402)
      \langle 223 \rangle n = A,T,C or G
      <400> 191
gagggattga aggtctgttc tastgtcggm ctgttcagcc accaactcta acaagttgct
                                                                         60
gtcttccact cactgtctgt aagcttttta acccagacwg tatcttcata aatagaacaa
                                                                         120
attetteace agteacatet tetaggacet ttttggatte agttagtata agetetteca
                                                                         180
cttcctttgt taagacttca tctggtaaag tcttaagttt tgtagaaagg aattyaattg
                                                                         240
ctcgttctct aacaatgtcc tctccttgaa gtatttggct gaacaaccca cctaaagtcc
                                                                         300
ctttgtgcat ccattttaaa tatacttaat agggcattgk incactaggt taaattctgc
                                                                         360
                                                                         402
aagagtcatc tgtctgcaaa agttgcgtta gtatatctgc ca
      <210> 192
      <211> 601
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(601)
      <223> n = A, T, C \text{ or } G
      <400> 192
gageteggat ecaataatet ttgtetgagg geageacaea tatneagtge eatggnaact
                                                                          60
ggtctacccc acatgggage agcatgccgt agntatataa ggtcattccc tgagtcagac
                                                                         120
atgcytyttt gaytaccgtg tgccaagtgc tggtgattct yaacacacyt ccatcccgyt
                                                                         180
cttttgtgga aaaactggca cttktctgga actagcarga catcacttac aaattcaccc
                                                                         240
acgagacact tgaaaggtgt aacaaagcga ytcttgcatt gctttttgtc cctccggcac
                                                                         300
cagttgtcaa tactaacccg ctggtttgcc tccatcacat ttgtgatctg tagctctgga
                                                                         360
tacatetect gacagtactg aagaacttet tettttgttt caaaageare tettggtgee
                                                                         420
                                                                         480
tgttggatca ggttcccatt tcccagtcyg aatgttcaca tggcatattt wacttcccac
 aaaacattgc gatttgaggc tcagcaacag caaatcctgt tccggcattg gctgcaagag
                                                                         540
cetegatgta geeggeeage geeaaggeag gegeegtgag eeccaecage ageagaagea
                                                                         600
                                                                         601
       <210> 193
       <211> 608
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1)...(608)
       <223> n = A, T, C or G
       <400> 193
                                                                          60
 atacageeca nateceacea egaagatgeg ettgttgaet gagaacetga tgeggteact
 ggtcccgctg tagccccagc gactctccac ctgctggaag cggttgatgc tgcactcytt
                                                                         120
 cccaacgcag gcagmagcgg gsccggtcaa tgaactccay tcgtggcttg gggtkgacgg
                                                                         180
 tkaagtgcag gaagaggctg accacctcgc ggtccaccag gatgcccgac tgtgcgggac
                                                                         240
 ctgcagcgaa actcctcgat ggtcatgagc gggaagcgaa tgaggcccag ggccttgccc
                                                                         300
```

```
agaacettce geetgttete tggegteace tgeagetget geegetgaca eteggeeteg
                                                                          360
 gaccagegga caaacggert tgaacageeg caceteacgg atgeccagtg tgtegegete
 caggammgsc accagegtgt ccaggtcaat gteggtgaag ceeteegegg gtratggegt
                                                                          420
                                                                          480
 ctgcagtgtt tttgtcgatg ttctccaggc acaggctggc cagctgcggt tcatcgaaga
                                                                          540
 gtegegeetg egtgageage atgaaggegt tgteggeteg eagttettet teaggaacte
                                                                          600
  cacgcaat
                                                                          608
        <210> 194
        <211> 392
        <212> DNA
        <213> Homo sapien
        <220>
       <221> misc_feature
       <222> (1)...(392)
       <223> n = A, T, C or G
       <400> 194
 gaacggctgg accttgcctc gcattgtgct tgctggcagg gaataccttg gcaagcagyt
                                                                          60
 ccagtccgag cagecccaga ccgetgccgc ccgaagetaa geetgeetet ggeetteece
                                                                         120
 tccgcctcaa tgcagaacca gtagtgggag cactgtgttt agagttaaga gtgaacactg
 tttgatttta cttgggaatt tcctctgtta tatagctttt cccaatgcta atttccaaac
                                                                         180
                                                                         240
 aacaacaaca aaataacatg tttgcctgtt aagttgtata aaagtaggtg attctgtatt
                                                                         300
 taaagaaaat attactgtta catatactgc ttgcaatttc tgtatttatt gktnctstgg
                                                                         360
 aaataaatat agttattaaa ggttgtcant cc
                                                                         392
       <210> 195
       <211> 502
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (502)
       <223> n = A, T, C or G
       <400> 195
ccsttkgagg ggtkaggkyc cagttyccga gtggaagaaa caggccagga gaagtgcgtg
ccgagctgag gcagatgttc ccacagtgac ccccagagcc stgggstata gtytctgacc
                                                                        120
cetencaagg aaagaccaes ttetggggae atgggetgga gggcaggaee tagaggcaee
                                                                        180
aagggaaggc cccattccgg ggstgttccc cgaggaggaa gggaaggggc tctgtgtgcc
                                                                        240
ccccasgagg aagaggccct gagtcctggg atcagacacc ccttcacgtg tatccccaca
                                                                        300
caaatgcaag ctcaccaagg tcccctctca gtccccttcc stacaccctg amcggccact
                                                                        360
gscscacacc cacccagage acgccacccg ccatggggar tgtgctcaag gartcgcngg
                                                                        420
gcarcgtgga catcingtcc cagaaggggg cagaatcicc aatagangga cigarcmsti
                                                                        480
gctnanaaaa aaaaanaaaa aa
                                                                        502
      <210> 196
      <211> 665
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(665)
      <223> n = A, T, C or G
      <400> 196
ggttacttgg tttcattgcc accacttagt ggatgtcatt tagaaccatt ttgtctgctc
                                                                        60
cctctggaag ccttgcgcag agcggacttt gtaattgttg gagaataact gctgaatttt
                                                                       120
wagctgtttk gagttgatts gcaccactgc acccacact tcaatatgaa aacyawttga
actwatttat tatettgtga aaagtataac aatgaaaatt ttgttcatac tgtattkate
                                                                       180
                                                                       240
```

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aagtatgatg aaaagcaawa gatatatatt cttttattat gttaaattat gattgccatt
                                                                        300 -
attaatcggc aaaatgtgga gtgtatgttc ttttcacagt aatatatgcc ttttgtaact
                                                                        360
tcacttggtt attttattgt aaatgartta caaaattctt aatttaagar aatggtatgt
                                                                        420
watatttatt tcattaattt ctttcctkgt ttacgtwaat tttgaaaaga wtgcatgatt
                                                                        480
                                                                        540
tettgacaga aategatett gatgetgtgg aagtagtttg acceacatee etatgagttt
ttcttagaat gtataaaggt tgtagcccat cnaacttcaa agaaaaaaat gaccacatac
                                                                        600
tttgcaatca ggctgaaatg tggcatgctn ttctaattcc aactttataa actagcaaan
                                                                        660
                                                                        665
      <210> 197
      <211> 492
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1) ... (492)
      <223> n = A, T, C or G
      <400> 197
                                                                         60
ttttnttttt tttttttgc aggaaggatt ccatttattg tggatgcatt ttcacaatat
atgtttattg gagcgatcca ttatcagtga aaagtatcaa gtgtttataa natttttagg
                                                                        120
aaggcagatt cacagaacat gctngtcngc ttgcagtttt acctcgtana gatnacagag
                                                                        180
aattatagto naaccagtaa acnaggaatt tacttttcaa aagattaaat ccaaactgaa
                                                                        240
caaaattcta ccctgaaact tactccatcc aaatattgga ataanagtca gcagtgatac
                                                                        300
attotottot gaactttaga ttttotagaa aaatatgtaa tagtgatcag gaagagotot
                                                                        360
                                                                        420
tgttcaaaag tacaacnaag caatgttccc ttaccatagg ccttaattca aactttgatc
                                                                        480
catttcactc ccatcacggg agtcaatgct acctgggaca cttgtatttt gttcatnctg
                                                                        492
ancntggctt aa
      <210> 198
      <211> 478
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(478)
      <223> n = A, T, C or G
      <400> 198
tttnttttgn atttcantct gtannaanta ttttcattat gtttattana aaaatatnaa
                                                                         60
                                                                        120
tgtntccacn acaaatcatn ttacntnagt aagaggccan ctacattgta caacatacac
tgagtatatt ttgaaaagga caagtttaaa gtanacncat attgccganc atancacatt
                                                                        180
                                                                        240
tatacatggc ttgattgata tttagcacag canaaactga gtgagttacc agaaanaaat
                                                                        300
natatatgtc aatcngattt aagatacaaa acagatccta tggtacatan catcntgtag
gagttgtggc tttatgttta ctgaaagtca atgcagttcc tgtacaaaga gatggccgta
                                                                        360
agcattctag tacctctact ccatggttaa gaatcgtaca cttatgttta catatgtnca
                                                                        420
gggtaagaat tgtgttaagt naanttatgg agaggtccan gagaaaaatt tgatncaa
                                                                        478
      <210> 199
      <211> 482
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(482)
      <223> n = A, T, C or G
      <400> 199
agtgacttgt cctccaacaa aaccccttga tcaagtttgt ggcactgaca atcagaccta
                                                                         60
```

```
tgctagttcc tgtcatctat tcgctactaa atgcagactg gaggggacca aaaaggggca
                                                                       120
 tcaactccag ctggattatt ttggagcctg caaatctatt cctacttgta cggactttga
                                                                       180
 agtgattcag tttcctctac ggatgagaga ctggctcaag aatatcctca tgcagcttta
 tgaagcenae tetgaacaeg etggttatet nagatgagaa neagagaaat aaagtenaga
                                                                      240
                                                                      300
 aaatttacct ggangaaaag aggetttngg etggggaeca teecattgaa eettetetta
 anggaettta agaanaaact accacatgin tgingiatee tggtgeengg eegttantg
                                                                      360
 aachtngach neaccettht ggaatanant cttgachgen teetgaactt geteetetge
                                                                      420
                                                                      480
                                                                      482
       <210> 200
       <211> 270
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (270)
       <223> n = A, T, C or G
       <400> 200
cggccgcaag tgcaactcca gctggggccg tgcggacgaa gattctgcca gcagttggtc
                                                                       60
 cgactgcgac gacggcggcg gcgacagtcg caggtgcagc gcgggcgcct ggggtcttgc
                                                                      120
aaggetgage tgaegeegea gaggtegtgt caegteecae gaeettgaeg eegtegggga
                                                                      180
cageeggaae agageeeggt gaangeggga ggeetegggg ageeeetegg gaagggegge
                                                                      240
ccgagagata cgcaggtgca ggtggccgcc
                                                                      270
      <210> 201
      <211> 419
      <212> DNA
      <213> Homo sapien
      <221> misc_feature
      <222> (1)...(419)
      <223> n = A, T, C or G
      <400> 201
ttttttttt ttttggaatc tactgcgagc acagcaggtc agcaacaagt ttattttgca
gctagcaagg taacagggta gggcatggtt acatgttcag gtcaacttcc tttgtcgtgg
                                                                      60
ttgattggtt tgtctttatg ggggcggggt ggggtagggg aaancgaagc anaantaaca
                                                                     120
                                                                     180
tggagtgggt gcaccctccc tgtagaacct ggttachaaa gcttggggca gttcacctgg
                                                                     240
tetgtgaceg teattttett gacateaatg ttattagaag teaggatate ttttagagag
                                                                     300
tccactgtnt ctggagggag attagggttt cttgccaana tccaancaaa atccacntga
                                                                     360
aaaagttgga tgatncangt acngaatacc ganggcatan ttctcatant cggtggcca
                                                                     419
      <210> 202
      <211> 509
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(509)
      <223> n = A, T, C or G
      <400> 202
60
tggcacttaa tccatttta tttcaaaatg tctacaaant ttnaatnonc cattatacng
                                                                     120
gtnattttnc aaaatctaaa nnttattcaa atntnagcca aantccttac ncaaatnnaa
tacnoncaaa aatcaaaaat atacntntot ttoagcaaac ttngttacat aaattaaaaa
                                                                    180
                                                                     240
aatatatacg gctggtgttt tcaaagtaca attatcttaa cactgcaaac atntttnnaa
                                                                    300
ggaactaaaa taaaaaaaa cactneegca aaggttaaag ggaacaacaa attentttta
                                                                    360
```

```
caacancnnc nattataaaa atcatatctc aaatcttagg ggaatatata cttcacacng
ggatcttaac ttttactnca ctttgtttat ttttttanaa ccattgtntt gggcccaaca
                                                                        480
                                                                        509
caatggnaat nccnccncnc tggactagt
      <210> 203
      <211> 583
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(583)
      <223> n = A, T, C or G
      <400> 203
                                                                         60
ttttttttt tttttttga ccccctctt ataaaaaaca agttaccatt ttattttact
tacacatatt tattttataa ttggtattag atattcaaaa ggcagctttt aaaatcaaac
                                                                        120
                                                                        180
taaatggaaa ctgccttaga tacataattc ttaggaatta gcttaaaatc tgcctaaagt
gaaaatette tetagetett tigaetgiaa attittgaet ettgiaaaac atecaaatte
                                                                        240
attttcttg tctttaaaat tatctaatct ttccattttt tccctattcc aagtcaattt
                                                                        300
gettetetag ceteatttee tagetettat etactattag taagtggett tttteetaaa
                                                                        360
                                                                        420
agggaaaaca ggaagagana atggcacaca aaacaaacat tttatattca tatttctacc
tacgttaata aaatagcatt ttgtgaagcc agctcaaaag aaggcttaga tccttttatg
                                                                        480
                                                                        540
tccattttag tcactaaacg atatcnaaag tgccagaatg caaaaggttt gtgaacattt
attcaaaagc taatataaga tatttcacat actcatcttt ctq
                                                                        583
      <210> 204
      <211> 589
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
     <222> (1) ... (589)
      <223> n = A, T, C or G
      <400> 204
tttttttnt tttttttt tttttnctc ttctttttt ttganaatga ggatcgagtt
                                                                         60
                                                                        120
tttcactctc tagatagggc atgaagaaaa ctcatctttc cagctttaaa ataacaatca
aatotottat gotatatoat attttaagtt aaactaatga gtoactggot tatottotoo
                                                                        180
tgaaggaaat ctgttcattc ttctcattca tatagttata tcaagtacta ccttgcatat
                                                                        240
tgagaggttt ttcttctcta tttacacata tatttccatg tgaatttgta tcaaaccttt
                                                                        300
attitcatgo aaactagaaa ataatgtntt ottitgoata agagaagaga acaatatnag
                                                                        360
cattacaaaa ctgctcaaat tgtttgttaa gnttatccat tataattagt tnggcaggag
                                                                        420
ctaatacaaa tcacatttac ngacnagcaa taataaaact gaagtaccag ttaaatatcc
                                                                        480
                                                                        540
aaaataatta aaggaacatt titagcctgg gtataattag ctaattcact ttacaagcat
                                                                        589
ttattnagaa tgaattcaca tgttattatt centagecca acacaatgg
      <210> 205
      <211> 545
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      \langle 222 \rangle (1)...(545)
      \langle 223 \rangle n = A, T, C or G
      <400> 205
ttttntttt tttttcagt aataatcaga acaatattta tttttatatt taaaattcat
                                                                         60
                                                                        120
 agaaaagtgc cttacattta ataaaagttt gtttctcaaa gtgatcagag gaattagata
 tngtcttgaa caccaatatt aatttgagga aaatacacca aaatacatta agtaaattat
                                                                        180
```

```
ttaagatcat agagcttgta agtgaaaaga taaaatttga cctcagaaac tctgagcatt
                                                                           240
 aaaaatccac tattagcaaa taaattacta tggacttctt gctttaattt tgtgatgaat
                                                                           300
 atggggtgtc actggtaaac caacacattc tgaaggatac attacttagt gatagattct
                                                                           360
 tatgtacttt gctanatnac gtggatatga gttgacaagt ttctctttct tcaatctttt
                                                                           420
 aaggggcnga ngaaatgagg aagaaaagaa aaggattacg catactgttc tttctatngg
                                                                           480
 aaggattaga tatgtttcct ttgccaatat taaaaaaata ataatgttta ctactagtga
                                                                           540
 aaccc
                                                                           545
       <210> 206
       <211> 487
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1) ... (487)
       <223> n = A, T, C or G
       <400> 206
ttttttttt ttttttagtc aagtttctna tttttattat aattaaagtc ttggtcattt
                                                                            60
catttattag ctctgcaact tacatattta aattaaagaa acgttnttag acaactgtna
                                                                           120
caatttataa atgtaaggtg ccattattga gtanatatat tcctccaaga gtggatgtgt
                                                                           180
cccttctccc accaactaat gaancagcaa cattagttta attttattag tagatnatac
                                                                           240
actgctgcaa acgctaattc tcttctccat ccccatgtng atattgtgta tatgtgtgag
                                                                           300
ttggtnagaa tgcatcanca atctnacaat caacagcaag atgaagctag gcntgggctt
                                                                           360
tcggtgaaaa tagactgtgt ctgtctgaat caaatgatct gacctatcct cggtggcaag
                                                                           420
aactettega accgetteet caaaggenge tgecacattt gtggentetn ttgeacttgt
                                                                           480
ttcaaaa
                                                                           487
       <210> 207
       <211> 332
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (332)
       <223> n = A, T, C or G
       <400> 207
tgaattggct aaaagactgc atttttanaa ctagcaactc ttatttcttt cctttaaaaa
                                                                            60
tacatagcat taaatcccaa atcctattta aagacctgac agcttgagaa ggtcactact
                                                                          120
gcatttatag gaccttctgg tggttctgct gttacntttg aantctgaca atccttgana
                                                                          180
atetttgeat geagaggagg taaaaggtat tggattttea eagaggaana acacagegea gaaatgaagg ggeeaggett actgagettg teeactggag ggeteatggg tgggaeatgg
                                                                          240
                                                                          300
aaaagaaggc agcctaggcc ctggggagcc ca
                                                                          332
      <210> 208
      <211> 524
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(524)
      <223> n = A, T, C or G
      <400> 208
agggcgtggt gcggagggcg ttactgtttt gtctcagtaa caataaatac aaaaagactg
                                                                           60
gttgtgttcc ggccccatcc aaccacgaag ttgattictc ttgtgtgcag agtgactgat
                                                                          120
tttaaaggac atggagcttg tcacaatgtc acaatgtcac agtgtgaagg gcacactcac
                                                                          180
tcccgcgtga ttcacattta gcaaccaaca atagctcatg agtccatact tgtaaatact
                                                                          240
```

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tttggcagaa tacttnttga aacttgcaga.tgataactaa gatccaagat atttcccaaa
                                                                           300
gtaaatagaa gtgggtcata atattaatta cctgttcaca tcagcttcca tttacaagtc
                                                                           360
atgageccag acactgaeat caaactaage ecacttagae tecteaceae cagtetgtee
                                                                           420
tgtcatcaga caggaggctg tcaccttgac caaattctca ccagtcaatc atctatccaa
                                                                           480
                                                                           524
aaaccattac ctgatccact tccggtaatg caccaccttg gtga
      <210> 209
      <211> 159
      <212> DNA
      <213> Homo sapien
      <400> 209
gggtgaggaa atccagagtt gccatggaga aaattccagt gtcagcattc ttgctccttg
                                                                            60
tggccctctc ctacactctg gccagagata ccacagtcaa acctggagcc aaaaaggaca
                                                                           120
                                                                           159
caaaggactc tcgacccaaa ctgccccaga ccctctcca
       <210> 210
       <211> 256
      <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(256)
       <223> n = A, T, C or G
       <400> 210
actccctggc agacaaaggc agaggagaga gctctgttag ttctgtgttg ttgaactgcc
                                                                            60
actgaattte titecactig gactattaca tgccanttga gggactaatg gaaaaacgta tggggagatt ttanccaatt tangtntgta aatggggaga ctggggcagg cgggagagat
                                                                            120
                                                                            180
ttgcagggtg naaatgggan ggctggtttg ttanatgaac agggacatag gaggtaggca
                                                                            240
                                                                            256
ccaggatgct aaatca
       <210> 211
       <211> 264
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (264)
       <223> n = A, T, C or G
       <400> 211
 acattgtttt tttgagataa agcattgaga gagctctcct taacgtgaca caatggaagg
                                                                             60
 actggaacac atacccacat cittgtictg agggataatt ttctgataaa gtcttgctgt
                                                                            120
 atattcaagc acatatgtta tatattattc agttccatgt ttatagccta gttaaggaga
                                                                            180
 ggggagatac attengaaag aggaetgaaa gaaatactea agtnggaaaa cagaaaaaga
                                                                            240
                                                                            264
 aaaaaaggag caaatgagaa gcct
       <210> 212
       <211> 328
        <212> DNA
       <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1) ... (328)
        <223> n = A, T, C or G
        <400> 212
 acccaaaaat ccaatgctga atatttggct tcattattcc canattcttt gattgtcaaa
                                                                             60
```

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ggatttaatg ttgtctcagc ttgggcactt cagttaggac ctaaggatgc cagccggcag
  gtttatatat gcagcaacaa tattcaagcg cgacaacagg ttattgaact tgcccgccag
                                                                             120
  ttnaatttca ttcccattga cttgggatcc ttatcatcag ccagagagat tgaaaattta
                                                                             180
  cccctacnac tetttactet etgganaggg ccagtggtgg tagetataag ettggccaca
                                                                             240
                                                                             300
  ttttttttc ctttattcct ttgtcaga
                                                                             328
        <210> 213
        <211> 250
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1) ... (250)
        <223> n = A, T, C or G
        <400> 213
 acttatgage agagegacat atcenagtgt agactgaata aaactgaatt etetecagtt
 taaagcattg ctcactgaag ggatagaagt gactgccagg agggaaagta agccaaggct cattatgcca aagganatat acatttcaat tctccaaact tcttcctcat tccaagagtt
                                                                             60
                                                                            120
 ttcaatattt gcatgaacct gctgataanc catgttaana aacaaatatc tctctnacct
                                                                            180
                                                                            240
 tctcatcggt
                                                                            250
       <210> 214
       <211> 444
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (444)
       <223> n = A, T, C or G
       <400> 214
 acccagaatc caatgctgaa tatttggctt cattattccc agattctttg attgtcaaag
gatttaatgt tgtctcagct tgggcacttc agttaggacc taaggatgcc agccggcagg
                                                                            60
tttatatatg cagcaacaat attcaagcgc gacaacaggt tattgaactt gcccgccagt
                                                                           120
tgaatttcat tcccattgac ttgggatcct tatcatcagc canagagatt gaaaatttac
                                                                           180
ccctacgact ctttactctc tggagagggc cagtggtggt agctataagc ttggccacat
                                                                           240
ttttttttcc tttattcctt tgtcagagat gcgattcatc catatgctan aaaccaacag
                                                                           300
agtgactttt acaaaattcc tataganatt gtgaataaaa ccttacctat agttgccatt
                                                                           360
                                                                           420
actitgetet ecetaatata eete
                                                                           444
       <210> 215
       <211> 366
       <212> DNA
       <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (366)
      <223> n = A, T, C or G
      <400> 215
acttatgage agagegaeat atccaagtgt anactgaata aaactgaatt etetecagtt
taaagcattg ctcactgaag ggatagaagt gactgccagg agggaaagta agccaaggct
                                                                           60
cattatgcca aagganatat acatttcaat tctccaaact tcttcctcat tccaagagtt
                                                                          120
                                                                          180
ttcaatattt gcatgaacct gctgataagc catgttgaga aacaaatatc tctctgacct
tctcatcggt aagcagaggc tgtaggcaac atggaccata gcgaanaaaa aacttagtaa
                                                                          240
tecaagetgt tttetacaet gtaaceaggt ttecaaceaa ggtggaaate teetataett
                                                                          300
                                                                          360
ggtgcc
                                                                          366
```

```
<210> 216
      <211> 260
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (260)
      <223> n = A, T, C or G
      <400> 216
ctgtataaac agaactccac tgcangaggg agggccgggc caggagaatc tccgcttgtc
                                                                            60
caagacaggg goctaaggag ggtctccaca ctgctnntaa gggctnttnc attttttat
                                                                           120
taataaaaag tnnaaaaggc ctcttctcaa ctttttccc ttnggctgga aaatttaaaa
                                                                           180
atcaaaaatt teetnaagtt nteaagetat catatataet ntateetgaa aaageaacat
                                                                           240
                                                                           260
aattcttcct tccctccttt
      <210> 217
      <211> 262
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(262)
      <223> n = A, T, C or G
acctacgtgg gtaagtttan aaatgttata atttcaggaa naggaacgca tataattgta
                                                                             60
tettgeetat aattitetat titaataagg aaatageaaa tiggggtiggg gggaatgiag
                                                                            120
ggcattctac agtttgagca aaatgcaatt aaatgtggaa ggacagcact gaaaaatttt
                                                                            180
atgaataatc tgtatgatta tatgtctcta gagtagattt ataattagcc acttacccta
                                                                            240
                                                                            262
atateettea tgettgtaaa gt
       <210> 218
       <211> 205
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1)...(205)
       <223> n = A, T, C or G
       <400> 218
accaaggtgg tgcattaccg gaantggatc aangacacca tcgtggccaa cccctgagca cccctatcaa ctcccttttg tagtaaactt ggaaccttgg aaatgaccag gccaagactc
                                                                             60
                                                                            120
aggeotecec agttetactg acctttgtee ttangtntna ngtecagggt tgetaggaaa
                                                                            180
                                                                            205
 anaaatcagc agacacaggt gtaaa
       <210> 219
       <211> 114
       <212> DNA
       <213> Homo sapien
       <400> 219
                                                                             60
 tactgttttg tctcagtaac aataaataca aaaagactgg ttgtgttccg gccccatcca
 accacgaagt tgatttetet tgtgtgcaga gtgactgatt ttaaaggaca tgga
                                                                            114
       <210> 220
       <211> 93
       <212> DNA
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<213> Homo sapien
        <400> 220
 actagecage acaaaaggea gggtageetg aattgettte tgetetttac atttettta
                                                                             60
 aaataagcat ttagtgctca gtccctactg agt
                                                                             93
        <210> 221
        <211> 167
        <212> DNA
        <213> Homo sapien
        <220>
       <221> misc_feature
        <222> (1) ... (167)
       <223> n = A, T, C or G
       <400> 221
 actangtgca ggtgcgcaca aatatttgtc gatattccct tcatcttgga ttccatgagg
                                                                            60
 tcttttgccc agcctgtggc tctactgtag taagtttctg ctgatgagga gccagnatgc
                                                                           120
 ccccactac cttccctgac gctccccana aatcacccaa cctctgt
                                                                          - 167
       <210> 222
       <211> 351
       <212> DNA
       <213> Homo sapien
       <400> 222
agggcgtggt gcggagggcg gtactgacct cattagtagg aggatgcatt ctggcacccc
                                                                            60
gttcttcacc tgtcccccaa tccttaaaag gccatactgc ataaagtcaa caacagataa
                                                                           120
atgtttgctg aattaaagga tggatgaaaa aaattaataa tgaatttttg cataatccaa
                                                                           180
ttttctcttt tatatttcta gaagaagttt ctttgagcct attagatccc gggaatcttt
                                                                           240
taggtgagca tgattagaga gcttgtaggt tgcttttaca tatatctggc atatttgagt
                                                                           300
ctcgtatcaa aacaatagat tggtaaaggt ggtattattg tattgataag t
                                                                           351
       <210> 223
       <211> 383
       <212> DNA
       <213> Homo sapien
      <220>
       <221> misc feature
       <222> (1)...(383)
      <223> n = A, T, C or G
      <400> 223
aaaacaaaca aacaaaaaa acaattcttc attcagaaaa attatcttag ggactgatat
                                                                           60
tggtaattat ggtcaattta atwrtrttkt ggggcatttc cttacattgt cttgacaaga ttaaaatgtc tgtgccaaaa ttttgtattt tatttggaga cttcttatca aaagtaatgc
                                                                          120
                                                                          180
tgccaaagga agtctaagga attagtagtg ttcccmtcac ttgtttggag tgtgctattc
                                                                          240
taaaagattt tgatttcctg gaatgacaat tatattttaa ctttggtggg ggaaanagtt
                                                                          300
ataggaccac agtetteact tetgatactt gtaaattaat etttattge acttgttttg
                                                                          360
accattaagc tatatgttta aaa
                                                                          383
      <210> 224
      <211> 320
      <212> DNA
      <213> Homo sapien
      <400> 224
cccctgaagg cttcttgtta gaaaatagta cagttacaac caataggaac aacaaaaga
                                                                           60
aaaagtttgt gacattgtag tagggagtgt gtacccctta ctccccatca aaaaaaaaat
                                                                          120
ggatacatgg ttaaaggata raagggcaat attttatcat atgttctaaa agagaaggaa
                                                                          180
```

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gagaaaatac tactttctcr aaatggaagc ccttaaaggt gctttgatac tgaaggacac
                                                                       240
aaatgtggcc gtccatcctc ctttaragtt gcatgacttg gacacggtaa ctgttgcagt
                                                                       300
                                                                       320
tttaractcm gcattgtgac
      <210> 225
      <211> 1214
      <212> DNA
      <213> Homo sapien
      <400> 225
                                                                        60
gaggactgca gcccgcactc gcagccctgg caggcggcac tggtcatgga aaacgaattg
ttetgetegg gegteetggt geateegeag tgggtgetgt cageegeaca etgtttecag
                                                                       120
aactcctaca ccatcggct gggcctgcac agtcttgagg ccgaccaaga gccagggagc
                                                                       180
cagatggtgg aggccagcct ctccgtacgg cacccagagt acaacagacc cttgctcgct
                                                                       240
                                                                       300
aacgacctca tgctcatcaa gttggacgaa tccgtgtccg agtctgacac catccggagc
atcagcattg cttcgcagtg ccctaccgcg gggaactctt gcctcgtttc tggctggggt
                                                                       360
ctgctggcga acggcagaat gcctaccgtg ctgcagtgcg tgaacgtgtc ggtggtgtct
                                                                       420
gaggaggtet geagtaaget etatgaceeg etgtaceace ceageatgtt etgegeegge
                                                                       480
                                                                       540
ggagggcaag accagaagga ctcctgcaac ggtgactctg gggggcccct gatctgcaac
gggtacttgc agggccttgt gtctttcgga aaagccccgt gtggccaagt tggcgtgcca
                                                                       600
ggtgtctaca ccaacctctg caaattcact gagtggatag agaaaaccgt ccaggccagt
                                                                       660
taactctggg gactgggaac ccatgaaatt gacccccaaa tacatcctgc ggaaggaatt
                                                                       720
caggaatate tgtteceage eceteetee teaggeecag gagteeagge ecetegeece teeteetea aaccaagget acagateec ageceeteet eceteagace caggagteea
                                                                       780
                                                                       840
gacccccag ccctcctcc ctcagaccca ggagtccagc ccctcctccc tcagacccag
                                                                       900
gagtccagac ccccagccc ctcctccctc agacccaggg gtccaggccc ccaacccctc
                                                                       960
ctccctcaga ctcagaggtc caagccccca acccctcctt ccccagaccc agaggtccag
                                                                      1020
qtcccagece etectecete agacecageg gtccaatgee acetagaete teeetgtaca
                                                                      1080
cagtgeece ttgtggeacg ttgacceaac ettaccagtt ggttttteat tttttgteec
                                                                      1140
1200
                                                                      1214
aaaaaaaaa aaaa
      <210> 226
      <211> 119
      <212> DNA
      <213> Homo sapien
       <400> 226
acccagtatg tgcagggaga cggaacccca tgtgacagcc cactccacca gggttcccaa
                                                                        60
agaacetgge ccagteataa teatteatee tgacagtgge aataateaeg ataaceagt
                                                                       119
       <210> 227
       <211> 818
       <212> DNA
       <213> Homo sapien
       <400> 227
 acaattcata gggacgacca atgaggacag ggaatgaacc cggctctccc ccagccctga
                                                                        60
 tttttgctac atatggggtc ccttttcatt ctttgcaaaa acactgggtt ttctgagaac
                                                                       120
 acggacggtt cttagcacaa tttgtgaaat ctgtgtaraa ccgggctttg caggggagat
                                                                       180
 aatttteete etetggagga aaggtggtga ttgacaggca gggagacagt gacaaggeta
                                                                       240
 gagaaagcca cgctcggcct tctctgaacc aggatggaac ggcagacccc tgaaaacgaa
                                                                       300
 gettgteece ttecaateag ceaettetga gaaceeceat etaaetteet aetggaaaag
                                                                        360
 agggcetect caggagcagt ccaagagttt tcaaagataa cgtgacaact accatetaga
                                                                        420
                                                                        480
 ggaaagggtg caccctcagc agagaagccg agagcttaac tctggtcgtt tccagagaca
 acctgctggc tgtcttggga tgcgcccagc ctttgagagg ccactacccc atgaacttct
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 gccatccact ggacatgaag ctgaggacac tgggcttcaa cactgagttg tcatgagagg
                                                                        600
 gacaggetet geeteaage eggetgaggg cageaaceae teteeteece ttteteaege
                                                                        660
 aaagccattc ccacaaatcc agaccatacc atgaagcaac gagacccaaa cagtttggct
                                                                        720
 caagaggata tgaggactgt ctcagcctgg ctttgggctg acaccatgca cacacaag
                                                                        780
                                                                        818
 gtccacttct aggttttcag cctagatggg agtcgtgt
```

```
<210> 228
       <211> 744
       <212> DNA
       <213> Homo sapien
       <400> 228
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                                                                          60
 gtcatgacgt ttgacatacc tttggaacga gcctcctcct tggaagatgg aagaccgtgt
                                                                         120
 togtggccga cotggcctct cotggcctgt ttottaagat goggagtcac atttcaatgg
                                                                         180
 taggaaaagt ggcttcgtaa aatagaagag cagtcactgt ggaactacca aatggcgaga
                                                                         240
 tgctcggtgc acattggggt gctttgggat aaaagattta tgagccaact attctctggc
                                                                        300
 accagattct aggccagttt gttccactga agcttttccc acagcagtcc acctctgcag
                                                                        360
 gctggcagct gaatggcttg ccggtggctc tgtggcaaga tcacactgag atcgatgggt
 gagaaggeta ggatgettgt ctagtgttet tagetgteac gttggeteet tecaggttgg
                                                                        420
                                                                        480
 ccagacggtg ttggccactc ccttctaaaa cacaggcgcc ctcctggtga cagtgacccg
                                                                        540
 ccgtggtatg ccttggccca ttccagcagt cccagttatg catttcaagt ttggggtttg
                                                                        600
 ttcttttcgt taatgttcct ctgtgttgtc agctgtcttc atttcctggg ctaagcagca
                                                                        660
 ttgggagatg tggaccagag atccactcct taagaaccag tggcgaaaga cactttcttt
                                                                        720
 cttcactctg aagtagctgg tggt
                                                                        744
       <210> 229
       <211> 300
       <212> DNA
       <213> Homo sapien
       <400> 229
cgagtctggg ttttgtctat aaagtttgat ccctcctttt ctcatccaaa tcatgtgaac
cattacacat cgaaataaaa gaaaggtggc agacttgccc aacgccaggc tgacatgtgc
                                                                        120
tgcagggttg ttgtttttta attattattg ttagaaacgt cacccacagt ccctgttaat
                                                                        180
tigtatgtga cagccaacte tgagaaggte ctattttee acetgcagag gatecagtet
                                                                        240
cactaggete etecttgece teacactgga gteteegeea gtgtgggtge ceactgacat
                                                                        300
       <210> 230
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 230
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                                                                        60
gagcgacagt tcaaggagga gaagcttgca gagcagctca agcaagctga ggagctcagg
caatataaag teetggttea caeteaggaa egagagetga eecagttaag ggagaagttg
                                                                       120
                                                                       180
cgggaaggga gagatgcete ceteteattg aatgageate tecaggeeet ceteacteeg
                                                                       240
gatgaaccgg acaagtccca ggggcaggac ctccaagaaa cagacctcgg ccgcgaccac
                                                                       300
g
                                                                       301
      <210> 231
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 231
gcaagcacgc tggcaaatct ctgtcaggtc agctccagag aagccattag tcattttagc
caggaactcc aagtccacat ccttggcaac tggggacttg cgcaggttag ccttgaggat
                                                                       120
ggcaacacgg gactteteat caggaagtgg gatgtagatg agetgateaa gacggccagg
                                                                       180
tetgaggatg geaggateaa tgatgteagg eeggttggta eegecaatga tgaacacatt
                                                                       240
tttttttgtg gacatgccat ccatttctgt caggatctgg ttgatgactc ggtcagcagc
                                                                       300
C
                                                                       301
      <210> 232
      <211> 301
      <212> DNA
      <213> Homo sapien
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<400> 232
agtaggtatt tcgtgagaag ttcaacacca aaactggaac atagttctcc ttcaagtgtt
                                                                         60
ggcgacagcg gggcttcctg attctggaat ataactttgt gtaaattaac agccacctat
                                                                        120
agaagagtee atetgetgtg aaggagagae agagaactet gggtteegte gteetgteea
                                                                        180
cgtgctgtac caagtgctgg tgccagcctg ttacctgttc tcactgaaaa tctggctaat
                                                                        240
gctcttgtgt atcacttctg attctgacaa tcaatcaatc aatggcctag agcactgact
                                                                        300
                                                                        301
      <210> 233
      <211> 301
      <212> DNA
      <213> Homo sapien
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atgctaaggc cccagagatc gtttgatcca accctcttat tttcagaggg gaaaatgggg
                                                                        120
                                                                        180
cctagaagtt acagagcatc tagctggtgc gctggcaccc ctggcctcac acagactccc
gagtagetgg gactacagge acacagteae tgaageagge cetgttagea attetatgeg
                                                                        240
                                                                        300
tacaaattaa catgagatga gtagagactt tattgagaaa gcaagagaaa atcctatcaa
                                                                        301
      <210> 234
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 234
aggicciaca catcgagaci catccatgat tgatatgaat ttaaaaatta caagcaaaga
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cattttattc atcatgatgc tttcttttgt ttcttctttt cgttttcttc tttttctttt
                                                                        120
                                                                        180
tcaatttcag caacatactt ctcaatttct tcaggattta aaatcttgag ggattgatct
                                                                        240
cgcctcatga cagcaagttc aatgtttttg ccacctgact gaaccacttc caggagtgcc
tigatcacca gcitaaiggt cagatcatci gcttcaatgg cttcgtcagt atagticitc
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                                                                        301
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       <211> 283
       <212> DNA
       <213> Homo sapien
       <400> 235
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                                                                         60
                                                                        120
aattocctca tottttaggg aatcatttac caggtttgga gaggattcag acagctcagg
tgctttcact aatgtctctg aacttctgtc cctctttgtt catggatagt ccaataaata
                                                                        180
                                                                        240
atgttatett tgaactgatg etcataggag agaatataag aactetgagt gatateaaca
                                                                        283
ttagggattc aaagaaatat tagatttaag ctcacactgg tca
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       <211> 301
       <212> DNA
       <213> Homo sapien
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 aatactttta aatcgatcag atttccctaa cccacatgca atcttcttca ccagaagagg
                                                                        120
 teggageage atcattaata ccaageagaa tgegtaatag ataaatacaa tggtatatag
                                                                        180
                                                                        240
 tgggtagacg gcttcatgag tacagtgtac tgtggtatcg taatctggac ttgggttgta
 aagcategtg taccagteag aaagcateaa tactegacat gaacgaatat aaagaacace
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<211> 301

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<212> DNA
        <213> Homo sapien
        <400> 237
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 ccttggctaa tgcctcatag taggagtcct cagaccagcc atggggatca aacatatcct
                                                                            120
                                                                           180
 ttgggtagtt ggtgccaagc tcgtcaatgg cacagaatgg atcagcttct cgtaaatcta
 gggttccgaa attettett cetttggata atgtagttca tatccattce ctcetttate
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                                                                           300
                                                                           301
        <210> 238
        <211> 301
        <212> DNA
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       <400> 238
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 gttcacagtt cageceetg etcagaaaac caaegggeea getaaggaga ggaggaggea
                                                                            60
 cettgagaet teeggagteg aggeteteca gggtteeeca geceateaat cattitetge
                                                                           120
 accceetgee tgggaageag etecetgggg ggtgggaatg ggtgaetaga agggatttea
                                                                           180
 gtgtgggacc cagggtctgt tettcacagt aggaggtgga agggatgact aatttettta
                                                                           240
                                                                           300
                                                                           301
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       <211> 239
       <212> DNA
       <213> Homo sapien
       <400> 239
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ttctgtcaaa ccatgatact gagctttgtg acaacccaga aataactaag agaaggcaaa
                                                                           60
                                                                          120
cataatacct tagagatcaa gaaacattta cacagttcaa ctgtttaaaa atagctcaac
                                                                          180
attcagccag tgagtagagt gtgaatgcca gcatacacag tatacaggtc cttcaggga
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       <210> 240
       <211> 300
       <212> DNA
       <213> Homo sapien
       <400> 240
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gggatetgee etecagtgga acettttaag gaagaagtgg geecaageta agttecacat
                                                                           60
gctgggtgag ccagatgact tctgttccct ggtcactttc ttcaatgggg cgaatggggg ctgccaggtt tttaaaatca tgcttcatct tgaagcacac ggtcacttca ccctcctcac
                                                                          120
                                                                          180
gctgtgggtg tactttgatg aaataccca ctttgttggc ctttctgaag ctataatgtc
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                                                                          300
      <210> 241
      <211> 301
      <212> DNA
      <213> Homo sapien
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gaggtetggt getgaggtet etgggetagg aagaggagtt etgtggaget ggaageeaga
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cetetttgga ggaaacteca geagetatgt tggtgtetet gagggaatge aacaaggetg
                                                                         120
ctcctccatg tattggaaaa ctgcaaactg gactcaactg gaaggaagtg ctgctgccag
tgtgaagaac cagcctgagg tgacagaaac ggaagcaaac aggaacagcc agtctttct
                                                                         180
                                                                         240
tectectect greatacggt eteteteaag cateetttgt tgteagggge etaaaaggga
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      <210> 242
      <211> 301
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<212> DNA
      <213> Homo sapien
      <400> 242
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tgtggcattt cctcattttc tacattgtag aatcaagagt gtaaataaat gtatatcgat
                                                                       120
gtcttcaaga atatatcatt cctttttcac tagaacccat tcaaaatata agtcaagaat
                                                                       180
cttaatatca acaaatatat caagcaaact ggaaggcaga ataactacca taatttagta
                                                                       240
taagtaccca aagttttata aatcaaaagc cctaatgata accatttta gaattcaatc
                                                                       300
                                                                       301
      <210> 243
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 243
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ggtggcccaa gctatgaaat cagagggagg cttcatctgg gcctgtaaaa actatgatgg
                                                                        120
tgacgtgcag tcggactctg tggcccaagg gtatggctct ctcggcatga tgaccagcgt
                                                                       180
gctggtttgt ccagatggca agacagtaga agcagaggct gcccacggga ctgtaacccg
                                                                        240
                                                                        300
teactacege atgitecaga aaggacagga gacgiccace aatcecatig eticcattit
                                                                        301
      <210> 244
      <211> 300
      <212> DNA
      <213> Homo sapien
      <400> 244
getggtttgc aagaatgaaa tgaatgattc tacagctagg acttaacctt gaaatggaaa
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gtcatgcaat cccatttgca ggatctgtct gtgcacatgc ctctgtagag agcagcattc
                                                                        120
ccagggacet tggaaacagt tgacactgta aggtgettge tececaagae acateetaaa
                                                                        180
aggigitgta aiggigaaaa cgicticcti cittatigcc ccitcitatt taigtgaaca
                                                                        240
actgtttgtc ttttgtgtat cttttttaaa ctgtaaagtt caattgtgaa aatgaatatc
                                                                        300
       <210> 245
      <211> 301
       <212> DNA
       <213> Homo sapien
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                                                                         60
 tatatactta gataaaaaat gaggtgaatt actatccatt gaaatcatgc tettagaatt
                                                                        120
 aaggccagga gatattgtca ttaatgtara cttcaggaca ctagagtata gcagccctat
                                                                        180
 gttttcaaag agcagagatg caattaaata ttgtttagca tcaaaaaggc cactcaatac
                                                                        240
 agctaataaa atgaaagacc taatttctaa agcaattctt tataatttac aaagttttaa
                                                                        300
                                                                        301
       <210> 246
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 246
 ggtctgtcct acaatgcctg cttcttgaaa gaagtcggca ctttctagaa tagctaaata
                                                                         60
 acctgggett attttaaaga actattigta geteagattg gtttteetat ggetaaaata
                                                                        120
 agtgcttctt gtgaaaatta aataaaacag ttaattcaaa gccttgatat atgttaccac
                                                                        180
 taacaatcat actaaatata ttttgaagta caaagtttga catgctctaa agtgacaacc
                                                                        240
 caaatgtgtc ttacaaaaca cgttcctaac aaggtatgct ttacactacc aatgcagaaa
                                                                        300
                                                                        301
 С
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<210> 247
        <211> 301
        <212> DNA
        <213> Homo sapien
        <400> 247
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 gcctaagagg gcgactggcg gcagcacaac caaggaaggc aaggttgttt cccccacget
                                                                         120
 gtgtcctgtg ttcaggtgcg acacacatc ctcatgggaa caggatcacc catgcgctgc
 ccttgatgat caaggttggg gcttaagtgg attaagggag gcaagttctg ggttccttgc
                                                                         180
                                                                         240
 cttttcaaac catgaagtca ggctctgtat ccctcctttt cctaactgat attctaacta
                                                                         300
                                                                         301
       <210> 248
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 248
 aggteettgg agatgeeatt teageegaag gaetettetw tteggaagta cacceteact
 attaggaaga ttettagggg taattttet gaggaaggag aactagecaa ettaagaatt
                                                                          60
                                                                         120
 acaggaagaa agtggttigg aagacagcca aagaaataaa agcagattaa attgtatcag
 gtacattcca gcctgttggc aactccataa aaacatttca gattttaatc ccgaatttag
                                                                         180
 ctaatgagac tggatttitg ttttttatgt tgtgtgtcgc agagctaaaa actcagttcc
                                                                         240
                                                                        300
                                                                        301
       <210> 249
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 249
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 coctgacget getgttetec cogaaaaace egacegacet cogegatete egtecegeee
                                                                         60
                                                                        120
ccagggagac acagcagtga ctcagagetg gtcgcacact gtgcctccct cctcaccgcc
categraatg aattatttig aaaattaatt ecaceateet tteagattet ggatggaaag
                                                                        180
actgaatctt tgactcagaa ttgtttgctg aaaagaatga tgtgactttc ttagtcattt
                                                                        240
                                                                        300
                                                                        301
       <210> 250
       <211> 301
       <212> DNA
      <213> Homo sapien
      <400> 250
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cttatettta ttggettgat aaacataatt atttetaaca etagettatt tecagttgee
                                                                         60
                                                                        120
cataagcaca tcagtacttt tctctggctg gaatagtaaa ctaaagtatg gtacatctac
                                                                       180
ctaaaagact actatgtgga ataatacata ctaatgaagt attacatgat ttaaagacta
caataaaacc aaacatgctt ataacattaa gaaaaacaat aaagatacat gattgaaacc
                                                                       240
                                                                       300
а
                                                                       301
      <210> 251
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 251
geegaggtee tacatttgge ecagttteee eetgeateet etecagggee eetgeeteat
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agacaacete atagageata ggagaactgg ttgeeetggg ggeaggggga etgtetggat
ggcaggggtc ctcaaaaatg ccactgtcac tgccaggaaa tgcttctgag cagtacacct
                                                                       120
cattgggatc aatgaaaagc ttcaagaaat cttcaggctc actctcttga aggcccggaa
                                                                       180
                                                                       240
```

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cctctggagg ggggcagtgg aatcccagct ccaggacgga tcctgtcgaa aagatatcct
                                                                             300
                                                                             301
      <210> 252
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 252
gcaaccaatc actctgtttc acgtgacttt tatcaccata caatttgtgg catttcctca
                                                                              60
                                                                             120
ttttctacat tgtagaatca agagtgtaaa taaatgtata tcgatgtctt caagaatata
tcattccttt ttcactagga acccattcaa aatataagtc aagaatctta atatcaacaa
                                                                             180
atatatcaag caaactggaa ggcagaataa ctaccataat ttagtataag tacccaaagt
                                                                             240
                                                                             300
tttataaatc aaaagcccta atgataacca tttttagaat tcaatcatca ctgtagaatc
                                                                             301
      <210> 253
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 253
ttccctaaga agatgttatt ttgttgggtt ttgttccccc tccatctcga ttctcgtacc
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caactaaaaa aaaaaataa agaaaaaatg tgctgcgttc tgaaaaataa ctccttagct
                                                                             120
                                                                             180
tggtctgatt gttttcagac cttaaaatat aaacttgttt cacaagcttt aatccatgtg
gattttttt cttagagaac cacaaaacat aaaaggagca agtcggactg aatacctgtt tccatagtgc ccacagggta ttcctcacat tttctccata ggaaaatgct ttttcccaag
                                                                             240
                                                                             300
                                                                             301
g
       <210> 254
       <211> 301
       <212> DNA
       <213> Homo sapien
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                                                                              60
                                                                             120
aacttgacca attcccttga agcgggtggg ttaaaccctg taaatgggaa caaaatcccc
                                                                             180
ccaaatctct tcatcttacc ctggtggact cctgactgta gaattttttg gttgaaacaa
gaaaaaata aagctttgga cttttcaagg ttgcttaaca ggtactgaaa gactggcctc acttaaactg agccaggaaa agctgcagat ttattaatgg gtgtgttagt gtgcagtgcc
                                                                             240
                                                                             300
                                                                             301
       <210> 255
       <211> 302
       <212> DNA
       <213> Homo sapien
       <400> 255
agcttttttt tttttttt ttttttttt ttcattaaaa aatagtgctc tttattataa
                                                                              60
attactgaaa tgtttctttt ctgaatataa atataaatat gtgcaaagtt tgacttggat
                                                                              120
tgggatittg tigagttett caagcatete ctaataceet caagggeetg agtagggggg
                                                                              180
aggaaaaagg actggaggtg gaatctttat aaaaaacaag agtgattgag gcagattgta
                                                                              240
                                                                              300
aacattatta aaaaacaaga aacaaacaaa aaaatagaga aaaaaaccac cccaacacac
                                                                              302
       <210> 256
       <211> 301
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
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<222> (1)...(301)
        <223> n = A, T, C or G
        <400> 256
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 aggaccetce tecceacace teaatecace aaaccateca taatgeacee agataggeee
                                                                               60
                                                                              120
 acceccaaaa geetggacae ettgageaca cagttatgae caggacagae teatetetat
                                                                              180
 aggcaaatag ctgctggcaa actggcatta cctggtttgt ggggatgggg gggcaagtgt gtggcctctc ggcctggtta gcaagaacat tcagggtagg cctaagttan tcgtgttagt
                                                                              240
                                                                              300
                                                                              301
        <210> 257
        <211> 301
        <212> DNA
        <213> Homo sapien
        <400> 257
 gttgtggagg aactctggct tgctcattaa gtcctactga ttttcactat cccctgaatt
                                                                               60
 tececaetta tttttgtett teactatege aggeettaga agaggtetae etgeeteeag
                                                                              120
 tettacetag tecagtetae eccetggagt tagaatggee atectgaagt gaaaagtaat
                                                                             180
 gtcacattac tecetteagt gatttettgt agaagtgeea atecetgaat gecaceaaga
                                                                             240
 tettaatett cacatettta atettatete titgaeteet etttacaceg gagaaggete
                                                                             300
                                                                             301
       <210> 258
       <211> 301
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       \langle 222 \rangle (1)...(301)
\langle 223 \rangle n = A,T,C or G
       <400> 258
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aggggcccag ccaccaggcg cagaagcaag ataaacagta ggctcaagac cagagccacc
                                                                             120
cccagggcaa caagaatcca ataccaggac tgggcaaaat cttcaaagat cttaacactg
                                                                             180
atgtctcggg cattgaggct gtcaataana cgctgatccc ctgctgtatg gtggtgtcat
                                                                             240
tggtgatccc tgggagcgcc ggtggagtaa cgttggtcca tggaaagcag cgcccacaac
                                                                             300
                                                                             301
       <210> 259
       <211> 301
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(301)
       <223> n = A, T, C or G
      <400> 259
tcatatatgc aaacaaatgc agactangcc tcaggcagag actaaaggac atctcttggg
                                                                             60
gtgtcctgaa gtgatttgga cccctgaggg cagacaccta agtaggaatc ccagtgggaa
                                                                            120
gcaaagccat aaggaagccc aggattcctt gtgatcagga agtgggccag gaaggtctgt
                                                                            180
tecageteae ateteatetg catgeageae ggaceggatg egeccaetgg gtettggett
                                                                            240
ccctcccatc ttctcaagca gtgtccttgt tgagccattt gcatccttgg ctccaggtgg
                                                                            300
                                                                            301
      <210> 260
      <211> 301
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<212> DNA
      <213> Homo sapien
      <400> 260
tttttttttt ccctaaggaa aaagaaggaa caagtctcat aaaaccaaat aagcaatggt
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aaggtgtctt aacttgaaaa agattaggag tcactggttt acaagttata attgaatgaa
                                                                          120
agaactgtaa cagccacagt tggccatttc atgccaatgg cagcaaacaa caggattaac
                                                                          180
tagggcaaaa taaataagtg tgtggaagcc ctgataagtg cttaataaac agactgattc
                                                                          240
actgagacat cagtacctgc ccgggcggcc gctcgagccg aattctgcag atatccatca
                                                                          300
                                                                          301
      <210> 261
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 261
aaatattcga gcaaatcctg taactaatgt gtctccataa aaggctttga actcagtgaa
                                                                            60
tetgetteca tecaegatte tageaatgae eteteggaea teaaagetee tettaaggtt
                                                                           120
                                                                          180
agcaccaact attocataca attoatcago aggaaataaa ggotottoag aaggttoaat
ggtgacatce aatttettet gataatttag atteeteaca acetteetag ttaagtgaag
                                                                           240
ggcatgatga tcatccaaag cccagtggtc acttactcca gactttctgc aatgaagatc
                                                                           300
                                                                           301
      <210> 262
      <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 262
gaggagagcc tgttacagca tttgtaagca cagaatactc caggagtatt tgtaattgtc
                                                                            60
tgtgagette ttgccgcaag tetetcagaa atttaaaaag atgcaaatce ctgagtcace
                                                                           120
cctagacttc ctaaaccaga tcctctgggg ctggaacctg gcactctgca tttgtaatga gggctttctg gtgcacacct aattttgtgc atctttgccc taaatcctgg attagtgccc
                                                                           180
                                                                           240
catcattace eccacattat aatgggatag atteagagea gatactetee ageaaagaat
                                                                           300
                                                                           301
       <210> 263
       <211> 301
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(301)
       <223> n = A, T, C or G
       <400> 263
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                                                                            60
aaaattacta cttaatccta attcacaata acaatggcat taaggtttga cttgagttgg
                                                                           120
ttcttagtat tatttatggt aaataggctc ttaccacttg caaataactg gccacatcat
                                                                           180
taatgactga cttcccagta aggctctcta aggggtaagt angaggatcc acaggatttg
                                                                           240
                                                                           300
 agatgctaag gccccagaga tcgtttgatc caaccctctt attttcagag gggaaaatgg
                                                                           301
       <210> 264
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 264
 aaagacgtta aaccactcta ctaccacttg tggaactctc aaagggtaaa tgacaaascc
                                                                            60
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aatgaatgac tctaaaaaca atatttacat ttaatggttt gtagacaata aaaaaacaag
                                                                         120
 gtggatagat ctagaattgt aacattttaa gaaaaccata scatttgaca gatgagaaag
                                                                         180
 ctcaattata gatgcaaagt tataactaaa ctactatagt agtaaagaaa tacatttcac
                                                                         240
 accetteata taaatteaet atettggett gaggeaetee ataaaatgta teaegtgeat
                                                                         300
                                                                         301
       <210> 265
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 265
 tgcccaagtt atgtgtaagt gtatccgcac ccagaggtaa aactacactg tcatctttgt
                                                                         60
 cttcttgtga cgcagtattt cttctctggg gagaagccgg gaagtcttct cctggctcta
                                                                        120
 catattettg gaagteteta atcaactitt gttecatttg ttteattet teaggaggga
                                                                        180
 ttttcagttt gtcaacatgt tctctaacaa cacttgccca tttctgtaaa gaatccaaag
                                                                        240
 cagtecaagg ctttgacatg teaacaacca gcataactag agtatectte agagatacgg
                                                                        300
                                                                        301
       <210> 266
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 266
taccgtctgc ccttcctccc atccaggcca tctgcgaatc tacatgggtc ctcctattcg
                                                                         60
acaccagate actettect etacccacag gettgetatg ageaagagae acaaccteet
                                                                        120
ctcttctgtg ttccagcttc ttttcctgtt cttcccaccc cttaagttct attcctgggg
                                                                        180
atagagacac caatacccat aacctetete ctaageetee ttataaccca gggtgeacag
                                                                        240
cacagactee tgacaactgg taaggecaat gaactgggag etcacagetg getgtgeetg
                                                                        300
                                                                        301
      <210> 267
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 267
aaagagcaca ggccagctca gcctgccctg gccatctaga ctcagcctgg ctccatgggg
                                                                        60
gtteteagtg etgagteeat ecaggaaaag etcacetaga ecttetgagg etgaatette
                                                                       120
atcctcacag gcagcttctg agagcctgat attcctagcc ttgatggtct ggagtaaagc
                                                                       180
ctcattctga ttcctctcct tcttttcttt caagttggct ttcctcacat ccctctgttc
                                                                       240
aattcgcttc agcttgtctg ctttagccct catttccaga agcttcttct ctttggcatc
                                                                       300
                                                                       301
      <210> 268
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 268
aatgteteae teaactaett eeeageetae egtggeetaa ttetgggagt tttettetta
                                                                        60
gatettggga gagetggtte ttetaaggag aaggaggaag gacagatgta actttggate
                                                                       120
tegaagagga agtetaatgg aagtaattag teaacggtee ttgtttagae tettggaata
                                                                       180
tgctgggtgg ctcagtgagc ccttttggag aaagcaagta ttattcttaa ggagtaacca
                                                                       240
cttcccattg ttctactttc taccatcatc aattgtatat tatgtattct ttggagaact
                                                                       300
                                                                       301
      <210> 269
      <211> 301
      <212> DNA
      <213> Homo sapien
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<400> 269
                                                                        60
taacaatata cactagctat ctttttaact gtccatcatt agcaccaatg aagattcaat
aaaattacct ttattcacac atctcaaaac aattctgcaa attcttagtg aagtttaact
                                                                       120
ataqtcacag accttaaata ttcacattgt tttctatgtc tactgaaaat aagttcacta
                                                                       180
cttttctgga tattctttac aaaatcttat taaaattcct ggtattatca cccccaatta
                                                                       240
tacagtagca caaccacctt atgtagtttt tacatgatag ctctgtagaa gtttcacatc
                                                                       300
                                                                       301
      <210> 270
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 270
                                                                        60
cattqaaqaq cttttgcqaa acatcagaac acaagtgctt ataaaattaa ttaagcctta
cacaagaata catatteett ttatttetaa ggagttaaac atagatgtag etgatgtgga
                                                                       120
                                                                       180
gagettgetg gtgeagtgea tattggataa cactatteat ggeegaattg atcaagteaa
                                                                       240
ccaactcctt gaactggatc atcagaagaa gggtggtgca cgatatactg cactagataa
                                                                       300
tggaccaacc aactaaattc tctcaccagg ctgtatcagt aaactggctt aacagaaaac
                                                                       301
      <210> 271
      <211> 301
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(301)
     \cdot<223> n = A,T,C or G
      <400> 271
aaaaggttct cataagatta acaatttaaa taaatatttg atagaacatt ctttctcatt
                                                                        60
                                                                       120
tttatagete atetttaggg ttgatattca gttcatgett ceettgetgt tettgateca
gaattgcaat cacttcatca gcctgtattc gctccaattc tctataaagt gggtccaagg
                                                                       180
tgaaccacag agccacagca cacctctttc ccttggtgac tgccttcacc ccatganggt
                                                                       240
                                                                       300
tetetectee agatganaac tgateatgeg eccacatttt gggttttata gaageagtea
                                                                       301
      <210> 272
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 272
                                                                        60
taaattqcta agccacagat aacaccaatc aaatggaaca aatcactgtc ttcaaatgtc
ttatcagaaa accaaatgag cctggaatct tcataatacc taaacatgcc gtatttagga
                                                                       120
tocaataatt coctoatgat gagcaagaaa aattotttgo goaccootco tgoatcoaca
                                                                       180
                                                                       240
gcatcttctc caacaaatat aaccttgagt ggcttcttgt aatctatgtt ctttgttttc
                                                                       300
ctaaggactt ccattgcatc tcctacaata ttttctctac gcaccactag aattaagcag
                                                                       301
q
      <210> 273
      <211> 301
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(301)
      <223> n = A, T, C or G
```

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<400> 273
 acatgtgtgt atgtgtatct ttgggaaaan aanaagacat cttgtttayt atttttttgg
                                                                             60
 agagangetg ggacatggat aatcacwtaa tttgctayta tyactttaat ctgactygaa
                                                                            120
 gaaccgtcta aaaataaaat ttaccatgtc dtatattcct tatagtatgc ttatttcacc
                                                                            180
 ttytttctgt ccagagagag tatcagtgac ananatttma gggtgaamac atgmattggt
                                                                            240
 gggactinty titacngagm accetgeecg sgegeecteg makengantt eegesanane
                                                                            300
                                                                            301
       <210> 274
       <211> 301
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (301)
       <223> n = A, T, C or G
       <400> 274
cttatatact ctttctcaga ggcaaaagag gagatgggta atgtagacaa ttctttgagg aacagtaaat gattattaga gagaangaat ggaccaagga gacagaaatt aacttgtaaa
                                                                            60
                                                                           120
tgattetett tggaatetga atgagateaa gaggeeaget ttagettgtg gaaaagteea
                                                                           180
tctaggtatg gttgcattct cgtcttcttt tctgcagtag ataatgaggt aaccgaaggc
                                                                           240
aattgtgctt cttttgataa gaagctttct tggtcatatc aggaaattcc aganaaagtc
                                                                           300
                                                                           301
       <210> 275
       <211> 301
       <212> DNA
       <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (301)
      <223> n = A, T, C or G
      <400> 275
tcggtgtcag cagcacgtgg cattgaacat tgcaatgtgg agcccaaacc acagaaaatg
                                                                            60
gggtgaaatt ggccaacttt ctattaactt atgttggcaa ttttgccacc aacagtaagc
                                                                           120
tggcccttct aataaaagaa aattgaaagg tttctcacta aacggaatta agtagtggag
                                                                           180
tcaagagact cccaggcctc agcgtacctg cccgggcggc cgctcgaagc cgaattctgc
                                                                           240
agatatecat cacactggeg gnegetegan catgeateta gaaggneeaa ttegeeetat
                                                                           300
a
                                                                           301
      <210> 276
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 276
tgtacacata ctcaataaat aaatgactgc attgtggtat tattactata ctgattatat
                                                                           60
ttatcatgtg acttctaatt agaaaatgta tccaaaagca aaacagcaga tatacaaaat
                                                                          120
taaagagaca gaagatagac attaacagat aaggcaactt atacattgag aatccaaatc
                                                                          180
caatacattt aaacatttgg gaaatgaggg ggacaaatgg aagccagatc aaatttgtgt
                                                                          240
aaaactattc agtatgtttc ccttgcttca tgtctgagaa ggctctcctt caatggggat
                                                                          300
                                                                          301
      <210> 277
      <211> 301
      <212> DNA
      <213> Homo sapien
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<220>
      <221> misc feature
      <222> (1) ... (301)
      <223> n = A, T, C or G
tttgttgatg tcagtatttt attacttgcg ttatgagtgc tcacctggga aattctaaag
                                                                            60
atacagagga cttggaggaa gcagagcaac tgaatttaat ttaaaagaag gaaaacattg
                                                                           120
gaatcatggc actectgata etticecaaa teaacactet caatgeecca ecetegteet
                                                                           180
caccatagtg gggagactaa agtggccacg gatttgcctt angtgtgcag tgcgttctga
                                                                           240
gttenetgte gattacatet gaccagtete etttteega agteenteeg tteaatettg
                                                                           300
                                                                           301
      <210> 278
      <211> 301
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(301)
      <223> n = A, T, C or G
      <400> 278
taccactaca ctccagcctg ggcaacagag caagacctgt ctcaaagcat aaaatggaat
                                                                            60
aacatatcaa atgaaacagg gaaaatgaag ctgacaattt atggaagcca gggcttgtca
                                                                           120
cagtetetae tgttattatg cattacetgg gaatttatat aageeettaa taataatgee aatgaacate teatgtgtge teacaatgtt etggeactat tataagtget teacaggttt
                                                                           180
                                                                           240
tatgtgttct tcgtaacttt atggantagg tactcggccg cgaacacgct aagccgaatt
                                                                           300
                                                                           301
       <210> 279
       <211> 301
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (301)
       <223> n = A, T, C or G
       <400> 279
aaagcaggaa tgacaaagct tgcttttctg gtatgttcta ggtgtattgt gacttttact
                                                                            60
 gttatattaa ttgccaatat aagtaaatat agattatata tgtatagtgt ttcacaaagc
                                                                           120
 ttagacettt acettecage caceccacag tgettgatat tteagagtea gteattggtt
                                                                           180
 atacatgtgt agttccaaag cacataagct agaanaanaa atatttctag ggagcactac
                                                                           240
 catctgtttt cacatgaaat gccacacaca tagaactcca acatcaattt cattgcacag
                                                                           300
                                                                           301
       <210> 280
       <211> 301
       <212> DNA
     . <213> Homo sapien
       <400> 280
 ggtactggag ttttcctccc ctgtgaaaac gtaactactg ttgggagtga attgaggatg
                                                                             60
 tagaaaggtg gtggaaccaa attgtggtca atggaaatag gagaatatgg ttctcactct
                                                                            120
 tgagaaaaaa acctaagatt agcccaggta gttgcctgta acttcagttt ttctgcctgg
                                                                            180
 gtttgatata gtttagggtt ggggttagat taagatctaa attacatcag gacaaagaga
                                                                            240
 cagactatta actccacagt tauttaagga ggtatgttcc atgtttattt gttaaagcag
                                                                            300
                                                                            301
```

```
<210> 281
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 281
 aggtacaaga aggggaatgg gaaagagctg ctgctgtggc attgttcaac ttggatattc
                                                                          60
 geogageaat ccaaateetg aatgaagggg catettetga aaaaggagat etgaatetea
 atgiggtage aatggettta tegggttata eggatgagaa gaacteeett tggagagaaa
                                                                         120
 tgtgtagcac actgcgatta cagctaaata acccgtattt gtgtgtcatg tttgcatttc
                                                                         180
                                                                         240
 tgacaagtga aacaggatct tacgatggag ttttgtatga aaacaaagtt gcagtacctc
                                                                         300
                                                                         301
       <210> 282
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 282
 caggtactac agaattaaaa tactgacaag caagtagttt cttggcgtgc acgaattgca
                                                                         60
 tccagaaccc aaaaattaag aaattcaaaa agacattttg tgggcacctg ctagcacaga
 agogoagaag caaagoocag goagaaccat gotaacotta cagotoagoo tgoacagaag
                                                                        120
cgcagaagca aagcccaggc agaaccatgc taaccttaca gctcagcctg cacagaagcg
                                                                        180
                                                                        240
cagaagcaaa gcccaggcag aacatgctaa ccttacagct cagcctgcac agaagcacag
                                                                        300
                                                                        301
       <210> 283
       <211> 301
       <212> DNA
      <213> Homo sapien
      <400> 283
atctgtatac ggcagacaaa ctttatarag tgtagagagg tgagcgaaag gatgcaaaag
cactttgagg gctttataat aatatgctgc ttgaaaaaa aaatgtgtag ttgatactca
                                                                         60
gtgcatctcc agacatagta aggggttgct ctgaccaatc aggtgatcat tttttctatc
                                                                        120
actteceagg tittatgeaa aaatittgtt aaattetata atggigatat geatetttta
                                                                        180
                                                                        240
ggaaacatat acattttaa aaatctattt tatgtaagaa ctgacagacg aatttgcttt
                                                                        300
q
                                                                        301
      <210> 284
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 284
caggtacaaa acgctattaa gtggcttaga atttgaacat ttgtggtctt tatttacttt
gcttcgtgtg tgggcaaagc aacatcttcc ctaaatatat attaccaaga aaagcaagaa
                                                                        60
                                                                       120
gcagattagg tititgacaa aacaaacagg ccaaaagggg gctgacctgg agcagagcat
ggtgagaggc aaggcatgag agggcaagtt tgttgtggac agatctgtgc ctactttatt
                                                                       180
                                                                       240
actggagtaa aagaaaacaa agttcattga tgtcgaagga tatatacagt gttagaaatt
                                                                       300
                                                                       301
     <210> 285
     <211> 301
      <212> DNA
     <213> Homo' sapien
     <220>
     <221> misc_feature
     <222> (1) ... (301)
     <223> n = A, T, C or G
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<400> 285
                                                                         60
acatcaccat gatcggatcc cccacccatt atacgttgta tgtttacata aatactcttc
aatgatcatt agtgttttaa aaaaaatact gaaaactcct tctgcatccc aatctctaac
                                                                        120
caggaaagca aatgctattt acagacctgc aagccctccc tcaaacnaaa ctatttctgg
                                                                        180
attacatatg totgacttot tttgaggtoa cacgactagg cacatgotat ttacgatotg
                                                                        240
                                                                        300
caaaagctgt ttgaagagtc aaagccccca tgtgaacacg atttctggac cctgtaacag
                                                                        301
      <210> 286
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 286
                                                                         60
taccactgca ttccagcctg ggtgacagag tgagactccg tctccaaaaa aaactttgct
                                                                        120
tgtatattat ttttgcctta cagtggatca ttctagtagg aaaggacagt aagattttt
                                                                        180
atcaaaatgt gtcatgccag taagagatgt tatattcttt tctcatttct tccccaccca
aaaataagct accatatagc ttataagtct caaatttttg ccttttacta aaatgtgatt
                                                                        240
gtttctgttc attgtgtatg cttcatcacc tatattaggc aaattccatt ttttcccttg
                                                                        300
                                                                        301
      <210> 287
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 287
tacagatctg ggaactaaat attaaaaatg agtgtggctg gatatatgga gaatgttggg
                                                                         60
cccagaagga acgtagagat cagatattac aacagctttg ttttgagggt tagaaatatg
                                                                        120
aaatgatttg gttatgaacg cacagtttag gcagcagggc cagaatcetg accetetgee
                                                                        180
cegtggttat etceteccea gettggetge etcatgttat cacagtatte cattttgttt
                                                                        240
gttgcatgtc ttgtgaagcc atcaagattt tctcgtctgt tttcctctca ttggtaatgc
                                                                        300
                                                                        301
      <210> 288
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 288
gtacacctaa ctgcaaggac agctgaggaa tgtaatgggc agccgctttt aaagaagtag
                                                                         60
agtcaatagg aagacaaatt ccagttccag ctcagtctgg gtatctgcaa agctgcaaaa
                                                                        120
gatotttaaa gacaatttca agagaatatt toottaaagt tggcaatttg gagatoatac
                                                                        180
                                                                        240
aaaagcatct gcttttgtga tttaatttag ctcatctggc cactggaaga atccaaacag
                                                                        300
tctgccttaa ttttggatga atgcatgatg gaaattcaat aatttagaaa gttaaaaaaa
                                                                        301
       <210> 289
       <211> 301
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (301)
       <223> n = A, T, C or G
       <400> 289
 ggtacactgt ttccatgtta tgtttctaca cattgctacc tcagtgctcc tggaaactta
                                                                         60
 gettttgatg tetecaagta gtecacette atttaactet ttgaaactgt atcatetttg
                                                                        120
 ccaagtaaga gtggtggcct atttcagctg ctttgacaaa atgactggct cctgacttaa
                                                                        180
```

```
cgttctataa atgaatgtgc tgaagcaaag tgcccatggt ggcggcgaan aagagaaaga
  tgtgttttgt tttggactct ctgtggtccc ttccaatgct gtgggtttcc aaccagngga
                                                                          240
                                                                          300
                                                                          301
         <210> 290
        <211> 301
         <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1) ... (301)
        <223> n = A, T, C or G
        <400> 290
 acactgagct cttcttgata aatatacaga atgcttggca tatacaagat tctatactac
 tgactgatet gttcatttet etcacagete ttacccecaa aagettttee accetaagtg
                                                                           60
 ttctgacctc cttttctaat cacagtaggg atagaggcag anccacctac aatgaacatg
                                                                          120
 gagttetate aagaggeaga aacageacag aateceagtt ttaccatteg ctageagtge
                                                                          180
 tgeettgaae aaaaaeattt eteeatgtet cattttette atgeetcaag taacagtgag
                                                                         240
                                                                         300
                                                                         301
        <210> 291
        <211> 301
        <212> DNA
        <213> Homo sapien
       <400> 291
 caggtaccaa tttcttctat cctagaaaca tttcatttta tgttgttgaa acataacaac
 tatatcagct agatttttt tctatgcttt acctgctatg gaaaatttga cacattctgc
                                                                          60
 tttactcttt tgtttatagg tgaatcacaa aatgtatttt tatgtattct gtagttcaat
                                                                         120
 agccatggct gtttacttca tttaatttat ttagcataaa gacattatga aaaggcctaa
                                                                         180
 acatgagett caetteecca etaactaatt ageatetgtt atttettaac egtaatgeet
                                                                         240
                                                                         300
                                                                         301
       <210> 292
       <211> 301
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(301)
       <223> n = A, T, C or G
      <400> 292
accttttagt agtaatgtct aataataaat aagaaatcaa ttttataagg tccatatagc
tgtattaaat aatttttaag tttaaaagat aaaataccat cattttaaat gttggtattc
                                                                         60
aaaaccaaag natataaccg aaaggaaaaa cagatgagac ataaaatgat ttgcnagatg
                                                                        120
ggaaatatag tasttyatga atgttnatta aattccagtt ataatagtgg ctacacactc
                                                                        180
tcactacaca cacagacece acagtectat atgecacaaa cacattteca taaettgaaa
                                                                        240
                                                                        300
                                                                        301
      <210> 293
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 293
ggtaccaagt gctggtgcca gcctgttacc tgttctcact gaaaagtctg gctaatgctc
ttgtgtagte acttetgatt etgacaatea ateaateaat ggeetagage actgactgtt
                                                                        60
aacacaaacg tcactagcaa agtagcaaca gctttaagtc taaatacaaa gctgttctgt
                                                                       120
                                                                       180
```

```
gtgagaattt tttaaaaggc tacttgtata ataacccttg tcatttttaa tgtacctcgg
                                                                        240
ccgcgaccac gctaagccga attctgcaga tatccatcac actggcggcc gctcgagcat
                                                                        300
                                                                        301
      <210> 294
      <211> 301
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(301)
      <223> n = A, T, C or G
tgacccataa caatatacac tagctatctt tttaactgtc catcattagc accaatgaag
                                                                         60
attcaataaa attaccttta ttcacacatc tcaaaacaat tctgcaaatt cttagtgaag
                                                                        120
tttaactata gtcacaganc ttaaatattc acattgtttt ctatgtctac tgaaaataag
                                                                        180
ttcactactt ttctgggata ttctttacaa aatcttatta aaattcctgg tattatcacc
                                                                        240
cccaattata cagtagcaca accaccttat gtagttttta catgatagct ctgtagaggt
                                                                        300
                                                                        301
      <210> 295
      <211> 305
      <212> DNA
      <213> Homo sapien
      <400> 295
gtactctttc tctcccctcc tctgaattta attctttcaa cttgcaattt gcaaggatta
                                                                         60
cacatttcac tgtgatgtat attgtgttgc aaaaaaaaa gtgtctttgt ttaaaattac
                                                                        120
ttggtttgtg aatccatctt gctttttccc cattggaact agtcattaac ccatctctga
                                                                        180
actggtagaa aaacrtctga agagctagtc tatcagcatc tgacaggtga attggatggt
                                                                        240
tetcagaacc atttcaccca gacagectgt ttctateetg tttaataaat tagtttgggt
                                                                        300
                                                                        305
tctct
       <210> 296
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 296
 aggtactatg ggaagctgct aaaataatat ttgatagtaa aagtatgtaa tgtgctatct
                                                                         60
 cacctagtag taaactaaaa ataaactgaa actttatgga atctgaagtt attttccttg
                                                                        120
 attaaataga attaataaac caatatgagg aaacatgaaa ccatgcaatc tactatcaac
                                                                        180
 tttgaaaaag tgattgaacg aaccacttag ctttcagatg atgaacactg ataagtcatt
                                                                        240
 tgtcattact ataaatttta aaatctgtta ataagatggc ctatagggag gaaaaagggg
                                                                        300
                                                                        301
 С
       <210> 297
       <211> 300
       <212> DNA °
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1) ... (300)
       <223> n = A, T, C or G
       <400> 297
 actgagtttt aactggacgc caagcaggca aggctggaag gttttgctct ctttgtgcta
                                                                          60
 aaggttttga aaaccttgaa ggagaatcat tttgacaaga agtacttaag agtctagaga
                                                                         120
 acaaagangt gaaccagctg aaagctctcg ggggaanctt acatgtgttg ttaggcctgt
                                                                         180
```

```
tccatcattg ggagtgcact ggccatccct caaaatttgt ctgggctggc ctgagtggtc
  accgcacete ggeegegace acgetaagee gaattetgea gatatecate acactggegg
                                                                          240
                                                                          300
        <210> 298
        <211> 301
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1)...(301)
        <223> n = A, T, C or G
        <400> 298
 tatggggttt gtcacccaaa agctgatgct gagaaaggcc tccctggggc ccctcccgcg
 ggcatctgag agacctggtg ttccagtgtt tctggaaatg ggtcccagtg ccgccggctg
                                                                          60
 tgaagetete agateaatea egggaaggge etggeggtgg tggeeacetg gaaceaceet
                                                                         120
 gtcctgtctg tttacatttc actaycaggt tttctctggg cattacnatt tgttcccta
                                                                         180
 caacagtgac ctgtgcattc tgctgtggcc tgctgtgtct gcaggtggct ctcagcgagg
                                                                         240
                                                                         300
                                                                         301
       <210> 299
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 299
 gttttgagac ggagtttcac tcttgttgcc cagactggac tgcaatggca gggtctctgc
 teactgeace etetgeetee caggitegag caatteteet geeteageet eccaggiage
                                                                         60
 tgggattgca ggctcacgcc accataccca gctaattttt ttgtattttt agtagagacg
                                                                        120
 gagtttcgcc atgttggcca gctggtctca aactcctgac ctcaagcgac ctgcctgcct
                                                                        180
 cggcctccca aagtgctgga attataggca tgagtcaaca cgcccagcct aaagatattt
                                                                        240
                                                                        300
                                                                        301
       <210> 300
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 300
attcagtttt atttgctgcc ccagtatctg taaccaggag tgccacaaaa tcttgccaga
tatgtcccac acceactggg aaaggctccc acctggctac ttcctctatc agctgggtca
                                                                         60
gctgcattcc acaaggttct cagcctaatg agtttcacta cctgccagtc tcaaaactta
                                                                        120
gtaaagcaag accatgacat tococcacgg aaatcagagt ttgccccacc gtottgttac
                                                                        180
tataaageet geetetaaca gteettgett etteacacca atecegageg catececcat
                                                                        240
                                                                        300
                                                                        301
      <210> 301
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 301
ttaaattttt gagaggataa aaaggacaaa taatctagaa atgtgtcttc ttcagtctgc
agaggacccc aggtctccaa gcaaccacat ggtcaagggc atgaataatt aaaagttggt
                                                                        60
gggaactcac aaagaccete agagetgaga cacccacaac agtgggaget cacaaagace
                                                                       120
ctcagagetg agacacecae aacagtggga geteacaaag acceteagag etgagacace
                                                                       180
cacaacagca cetegtteag etgecacatg tgtgaataag gatgeaatgt ceagaagtgt
                                                                       240
                                                                       300
                                                                       301
      <210> 302
      <211> 301
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<212> DNA
      <213> Homo sapien
      <400> 302
aggtacacat ttagcttgtg gtaaatgact cacaaaactg attttaaaat caagttaatg
                                                                                60
tgaattttga aaattactac ttaatcctaa ttcacaataa caatggcatt aaggtttgac
                                                                               120
tigagttggt tottagtatt atttatggta aataggotot taccacttgc aaataactgg
                                                                               180
ccacatcatt aatgactgac ttcccagtaa ggctctctaa ggggtaagta ggaggatcca
                                                                               240
caggatttga gatgctaagg ccccagagat cgtttgatcc aaccetetta ttttcagagg
                                                                               300
                                                                               301
      <210> 303
      <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 303
aggtaccaac tgtggaaata ggtagaggat catttttct ttccatatca actaagttgt
                                                                                60
atattgtttt tigacagttt aacacatctt cttctgtcag agattctttc acaatagcac
                                                                               120
tggctaatgg aactaccgct tgcatgttaa aaatggtggt ttgtgaaatg atcataggcc
                                                                               180
                                                                               240
agtaacgggt atgttttct aactgatctt ttgctcgttc caaagggacc tcaagacttc
                                                                               300
catcgatttt atatctgggg tctagaaaag gagttaatct gttttccctc ataaattcac
                                                                               301
       <210> 304
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 304
acatggatgt tattttgcag actgtcaacc tgaatttgta tttgcttgac attgcctaat tattagtttc agtttcagct tacccacttt ttgtctgcaa catgcaraas agacagtgcc
                                                                                60
                                                                               120
ctttttagtg tatcatatca ggaatcatct cacattggtt tgtgccatta ctggtgcagt
                                                                               180
gactttcagc cacttgggta aggtggagtt ggccatatgt ctccactgca aaattactga
                                                                               240
ttttcctttt gtaattaata agtgtgtgtg tgaagattct ttgagatgag gtatatatct
                                                                               300
                                                                               301
       <210> 305
     · <211> 301
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       \langle 222 \rangle (1)...(301)
\langle 223 \rangle n = A,T,C or G
gangtacage gtggtcaagg taacaagaag aaaaaaatgt gagtggcate etgggatgag caggggggaca gacetggaca gacacgttgt catttgetge tgtgggtagg aaaatgggeg
                                                                                60
                                                                               120
taaaggagga gaaacagata caaaatctcc aactcagtat taaggtattc tcatgcctag
                                                                               180
aatattggta gaaacaagaa tacattcata tggcaaataa ctaaccatgg tggaacaaaa
                                                                               240
                                                                               300
ttctgggatt taagttggat accaangaaa ttgtattaaa agagctgttc atggaataag
                                                                               301
       <210> 306
       <211> 8
       <212> PRT
       <213> Homo sapien
       <400> 306
Val Leu Gly Trp Val Ala Glu Leu
```

. . . . .

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1
                      5
         <210> 307
         <211> 637
         <212> DNA
         <213> Homo sapien
         <400> 307
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 ttgtgatcag gtggtctatg gggcttatcc ctacaaagaa gaatccagaa ataggggcac attgaggaat gatacttgag cccaaagagc attcaatcat tgttttattt gccttmtttt
                                                                                    60
                                                                                  120
                                                                                  180
 cacaccattg gtgagggagg gattaccacc ctggggttat gaagatggtt gaacacccca
                                                                                  240
 cacatagcac cggagatatg agatcaacag tttcttagcc atagagattc acagcccaga
 gcaggaggac gcttgcacac catgcaggat gacatggggg atgcgctcgg gattggtgtg
                                                                                  300
 aagaagcaag gactgttaga ggcaggcttt atagtaacaa gacggtgggg caaactctga
                                                                                  360
 tttccgtggg ggaatgtcat ggtcttgctt tactaagttt tgagactggc aggtagtgaa
                                                                                  420
 actcattagg ctgagaacct tgtggaatgc acttgaccca sctgatagag gaagtagcca
                                                                                  480
 ggtgggagcc tttcccagtg ggtgtgggac atatctggca agattttgtg gcactcctgg
                                                                                  540
                                                                                  600
 ttacagatac tggggcagca aataaaactg aatcttg
                                                                                  637
        <210> 308
        <211> 647
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1) ... (647)
        <223> n = A, T, C or G
        <400> 308
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tgctcagggg aaggttcata tgggactttc tactgcccaa ggttctatac aggatataaa
                                                                                  60
ggngcctcac agtatagatc tggtagcaaa gaagaagaaa caaacactga tctcttctg
                                                                                 120
ccacccctct gaccctttgg aactcctctg accctttaga acaagcctac ctaatatctg
                                                                                 180
ctagagaaaa gaccaacaac ggcctcaaag gatctcttac catgaaggtc tcagctaatt cttggctaag atgtgggttc cacattaggt tctgaatatg gggggaaggg tcaatttgct
                                                                                 240
                                                                                 300
cattttgtgt gtggataaag tcaggatgcc caggggccag agcagggggc tgcttgcttt
                                                                                 360
gggaacaatg gctgagcata taaccatagg ttatggggaa caaaacaaca tcaaagtcac
                                                                                 420
                                                                                 480
tgtatcaatt gccatgaaga cttgagggac ctgaatctac cgattcatct taaggcagca
ggaccagttt gagtggcaac aatgcagcag cagaatcaat ggaaacaaca gaatgattgc
                                                                                 540
aatgteettt ttttteteet gettetgaet tgataaaagg ggacegt
                                                                                 600
                                                                                 647
       <210> 309
       <211> 460
       <212> DNA
       <213> Homo sapien
       <400> 309
actttatagt ttaggctgga cattggaaaa aaaaaaaagc cagaacaaca tgtgatagat
aatatgattg gctgcacact tccagactga tgaatgatga acgtgatgga ctattgtatg
                                                                                  60
                                                                                120
gagcacatet teagcaagag ggggaaatae teateattit tggeeageag ttgtttgate accaaacate atgeeagaat acteageaaa cettettage tettgagaag teaaagteeg
                                                                                180
ggggaattta ttcctggcaa ttttaattgg actccttatg tgagagcagc ggctacccag
                                                                                240
ctggggtggt ggagcgaacc cgtcactagt ggacatgcag tggcagagct cctggtaacc acctagagga atacacaggc acatgtgtga tgccaagcgt gacacctgta gcactcaaat
                                                                                300
                                                                                360
                                                                                420
ttgtcttgtt tttgtctttc ggtgtgtaag attcttaagt
                                                                                460
      <210> 310
      <211> 539
      <212> DNA
      <213> Homo sapien
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<400> 310
acgggactta tcaaataaag ataggaaaag aagaaaactc aaatattata ggcagaaatg
                                                                             60
ctaaaggttt taaaatatgt caggattgga agaaggcatg gataaagaac aaagttcagt
                                                                            120
taggaaagag aaacacagaa ggaagagaca caataaaagt cattatgtat tctgtgagaa
                                                                            180
gtcagacagt aagatttgtg ggaaatgggt tggtttgttg tatggtatgt attttagcaa
                                                                            240
taatctttat ggcagagaaa gctaaaatcc tttagcttgc gtgaatgatc acttgctgaa
                                                                            300
ttcctcaagg taggcatgat gaaggagggt ttagaggaga cacagacaca atgaactgac
                                                                            360
ctagatagaa agccttagta tactcagcta ggaatagtga ttctgagggc acactgtgac
                                                                            420
atgattatgt cattacatgt atggtagtga tggggatgat aggaaggaag aacttatggc
                                                                            480
atattttcac ccccacaaa gtcagttaaa tattgggaca ctaaccatcc aggtcaaga
                                                                            539
      <210> 311
      <211> 526
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(526)
      <223> n = A, T, C or G
      <400> 311
                                                                             60
caaatttgag ccaatgacat agaattttac aaatcaagaa gcttattctg gggccatttc
                                                                            120
ttttgacgtt ttctctaaac tactaaagag gcattaatga tccataaatt atattatcta
catttacage atttaaaatg tgttcagcat gaaatattag ctacagggga agctaaataa attaaacatg gaataaagat ttgtccttaa atataatcta caagaagact ttgatatttg
                                                                            180
                                                                            240
tttttcacaa gtgaagcatt cttataaagt gtcataacct ttttggggaa actatgggaa
                                                                            300
aaaatgggga aactctgaag ggttttaagt atcttacctg aagctacaga ctccataacc
                                                                            360
tetetttaca gggageteet geageeecta cagaaatgag tggetgagat tettgattge
                                                                            420
acagcaagag cttctcatct aaaccctttc cctttttagt atctgtgtat caagtataaa
                                                                            480
agttctataa actgtagtnt acttatttta atccccaaag cacagt
                                                                            526
       <210> 312
       <211> 500
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(500)
       <223> n = A, T, C or G
       <400> 312
cetetetete eccaececet gaetetagag aactgggttt teteceagta etceageaat teattetga aageagttga gecaetttat tecaaagtae aetgeagatg tteaaactet
                                                                             60
                                                                            120
                                                                            180
ccatttetet tteeetteea cetgecagtt ttgetgaete teaacttgte atgagtgtaa
gcattaagga cattatgctt cttcgattct gaagacaggc cctgctcatg gatgactctg
                                                                            240
gettettagg aaaatattt tettecaaaa teagtaggaa atetaaaett ateeeetett
                                                                            300
tgcagatgtc tagcagcttc agacatttgg ttaagaaccc atgggaaaaa aaaaaatcct
                                                                            360
tgctaatgtg gtttcctttg taaaccanga ttcttatttg nctggtatag aatatcagct
                                                                            420
ctgaacgtgt ggtaaagatt tttgtgtttg aatataggag aaatcagttt gctgaaaagt
                                                                            480
                                                                            500
tagtcttaat tatctattgg
       <210> 313
       <211> 718
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(718)
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## <223> n = A, T, C or G

<400> 313	
ggagatttgt gtggtttgca gccgagggag accaggaaga tctgcatggt gggaaggacc	60
tgatgataca gaggtgagaa ataagaaagg ctgctgactt taccatctga ggccacacat	120
Ctgctgaaat ggagataatt aacatcacta qaaacagcaa gatgacaata taatgtctaa	180
gragingacai gittitgcac atticcagce cittiaaata tecacacaca caggaagcac	240
aaaaggaagc acagagatcc ctgggagaaa tgcccggccg ccatcttggg tcatcgatga	300
gcctcgccct gtgcctgntc ccqcttqtqa qqqaaqqaca ttaqaaaatq aattgatqtq	360
ticcitadag gatggcagga aaacagatcc tgttgtggat atttatttga acgggattac	420
agairigada igaagicaca aagigagcai taccaatgag aggaaaacag acgagaaaat	480
Cttgatggtt Cacaagacat qcaacaaaca aaatggaata ctgtgatgac acgagcagcc	540
aactggggag gagataccac ggggcagagg tcaggattct ggccctgctg cctaactgtg	600
egitatacca atcatticta titctaccci caaacaagci gingaatatc tgacttacgg	660
ttcttntggc ccacattttc atnatccacc contentttt aannttantc caaantgt	718
-	
<210> 314 <211> 358	
<211> 358 <212> DNA	
<213> Homo sapien	
(213) Holio Sapien	
<400> 314	
gtttatttac attacagaaa aaacatcaag acaatgtata ctatttcaaa tatatccata	
cataatcaaa tatagctgta gtacatgttt tcattggtgt agattaccac aaatgcaagg	60
caacatgtgt agatctcttg tcttattctt ttgtctataa tactgtattg tgtagtccaa	120
geteteggta gtecagecae tgtgaaacat geteeettta gattaacete gtggaegete	180
ttgttgtatt gctgaactgt agtgccctgt attttgcttc tgtctgtgaa ttctgttgct	240
tetggggcat tteettgtga tgeagaggae caccacaea atgacageaa tetgaatt	300 358
	336
<210> 315	
<211> 341	
<212> DNA	
<213> Homo sapien	
<400> 315	
taccacctcc ccgctggcac tgatgagccg catcaccatg gtcaccagca ccatgaaggc	60
ataggtgatg atgaggacat ggaatgggcc cccaaggatg gtctgtccaa agaagcgagt	120
gaccccatt ctgaagatgt ctggaacctc taccagcagg atgatgatag ccccaatgac	180
agtcaccage teccegacea geoggatate gteettaggg gteatgtagg etteetgaag tagettetge tgtaagaggg tgttgteeeg ggggetegtg eggttattgg teetgggett	240
gagggggcgg tagatgcagc acatggtgaa gcagatgatg t	300
July 15 1	341
<210> 316	
<211> 151	
<212> DNA	
<213> Homo sapien	
.400	
<400> 316	
agactgggca agactettac gccccacact gcaatttggt cttgttgccg tatccattta	60
tgtgggcctt tctcgagttt ctgattataa acaccactgg agcgatgtgt tgactggact	120
cattcaggga gctctggttg caatattagt t	151
<210> 317	
<211> 151	
<212> DNA	
<213> Homo sapien	
<400> 317	
agaactagtg gatcctaatg aaatacctga aacatatatt ggcatttatc aatggctcaa	60
attituatit attitigget ttaaceetgg etectgagge tgeggeeage agateeeagg	120
ccagggetet gttettgeea cacetgettg a	151
<del>-</del>	

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<210> 318
      <211> 151
      <212> DNA
      <213> Homo sapien
      <400> 318
                                                                           60
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getgeagget ggagtgtett tatteetgge gggagacege acatteeact getgaggetg
                                                                          120
                                                                          151
tgggggcggt ttatcaggca gtgataaaca t
      <210> 319
      <211> 151
      <212> DNA
      <213> Homo sapien
      <400> 319
aactagtgga tocagagota taggtacagt gtgatotcag otttgcaaac acattttota
                                                                           60
catagatagt actaggtatt aatagatatg taaagaaaga aatcacacca ttaataatgg taagattggg tttatgtgat tttagtgggt a .
                                                                          120
                                                                          151
      <210> 320
      <211> 150
      <212> DNA
      <213> Homo sapien
      <400> 320
aactagtgga tecaetagte cagtgtggtg gaattecatt gtgttggggt tetagatege
                                                                           60
gagcggctgc ccttttttt ttttttttg ggggggaatt tttttttt aatagttatt
                                                                          120
                                                                          150
gagtgttcta cagcttacag taaataccat
      <210> 321
      <211> 151
      <212> DNA
      <213> Homo sapien
      <400> 321
agcaactttg tttttcatcc aggttatttt aggcttagga tttcctctca cactgcagtt
                                                                           60
tagggtggca ttgtaaccag ctatggcata ggtgttaacc aaaggctgag taaacatggg
                                                                          120
                                                                          151
tgcctctgag aaatcaaagt cttcatacac t
      <210> 322
      <211> 151
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(151)
      <223> n = A, T, C or G
      <400> 322
atccagcate tteteetgtt tettgeette ettttette ttettasatt etgettgagg
                                                                           60
                                                                          120
tttgggcttg gtcagtttgc cacagggctt ggagatggtg acagtcttct ggcattcggc
                                                                          151
attgtgcagg gctcgcttca nacttccagt t
       <210> 323
       <211> 151
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
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<222> (1)...(151)
       <223> n = A,T,C or G
       <400> 323
 tgaggacttg tkttcttttt ctttattttt aatcctctta ckttgtaaat atattgccta
                                                                              60
 nagactcant tactacccag tttgtggttt twtgggagaa atgtaactgg acagttagct
                                                                             120
 gttcaatyaa aaagacactt ancccatgtg g
                                                                             151
       <210> 324
       <211> 461
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(461)
       <223> n = A, T, C or G
       <400> 324
 acctgtgtgg aatttcagct ttcctcatgc aaaaggattt tgtatccccg gcctacttga
                                                                             60
 agaagtggtc agctaaagga atccaggttg ttggttggac tgttaatacc tttgatgaaa
                                                                            120
 agagttacta egaateeeat ettggtteea getatateae tgacageatg gtagaagaet
                                                                            180
gegaacetea ettetagaet tteaeggtgg gacgaaacgg gtteagaaac tgeeagggge
                                                                            240
ctcatacagg gatatcaaaa taccetttgt gctacccagg ccctggggaa tcaggtgact cacacaaatg caatagttgg tcactgcatt tttacctgaa ccaaagctaa acccggtgtt
                                                                            300
                                                                            360
gccaccatgc accatggcat gccagagttc aacactgttg ctcttgaaaa ttgggtctga
                                                                            420
aaaaacgcac aagagcccct gccctgccct agctgangca c
                                                                            461
       <210> 325
       <211> 400
       <212> DNA
      <213> Homo sapien
       <400> 325
acactgtttc catgttatgt ttctacacat tgctacctca gtgctcctgg aaacttagct
                                                                             60
tttgatgtct ccaagtagtc caccttcatt taactctttg aaactgtatc atctttgcca
                                                                            120
agtaagagtg gtggcctatt tcagctgctt tgacaaaatg actggctcct gacttaacgt
                                                                            180
tctataaatg aatgtgctga agcaaagtgc ccatggtggc ggcgaagaag agaaagatgt
                                                                            240
gttttgtttt ggactctctg tggtcccttc caatgctgtg ggtttccaac caggggaagg
                                                                            300
gtecettttg cattgecaag tgecataace atgageacta egetaecatg gttetgeete
                                                                            360
ctggccaagc aggctggttt gcaagaatga aatgaatgat
                                                                            400
      <210> 326
      <211> 1215
      <212> DNA
      <213> Homo sapien
      <400> 326
ggaggactgc agcccgcact cgcagccctg gcaggcggca ctggtcatgg aaaacgaatt
                                                                            60
gttctgctcg ggcgtcctgg tgcatccgca gtgggtgctg tcagccgcac actgtttcca
                                                                           120
gaactectae accateggge tgggeetgea cagtettgag geegaecaag agecagggag
                                                                           180
ccagatggtg gaggccagcc tctccgtacg gcacccagag tacaacagac ccttgctcgc
                                                                           240
taacgacctc atgctcatca agttggacga atccgtgtcc gagtctgaca ccatccggag
                                                                           300
catcagcatt gettegeagt geectacege ggggaactet tgeetegttt etggetgggg
                                                                           360
tetgetggeg aacggeagaa tgeetacegt getgeagtge gtgaacgtgt eggtggtgte tgaggaggte tgeagtaage tetatgacee getgtaceae eccageatgt tetgegeegg
                                                                           420
                                                                           480
cggagggcaa gaccagaagg actcctgcaa cggtgactct ggggggcccc tgatctgcaa
                                                                           540
egggtacttg cagggeettg tgtetttegg aaaageeeeg tgtggeeaag ttggegtgee
                                                                           600
aggigtetac accaacetet geaaatteae tgagiggata gagaaaaceg teeaggeeag
                                                                           660
ttaactctgg ggactgggaa cccatgaaat tgaccccaa atacatcctg cggaaggaat
                                                                           720
teaggaatat etgtteecag eccetectee etcaggecca ggagtecagg eccecagece
                                                                           780
etectecete aaaccaaggg tacagatece cageceetee teecteagae ecaggagtee
                                                                           840
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85

100

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 Pro Lys Gln Pro Gln Lys Arg Ser Arg Ala Ala Phe Ser His Thr Gln
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                             40
 Val Ile Glu Leu Glu Arg Lys Phe Ser His Gln Lys Tyr Leu Ser Ala
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 Pro Glu Arg Ala His Leu Ala Lys Asn Leu Lys Leu Thr Glu Thr Gln
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                                         75
 Val Lys Ile Trp Phe Gln Asn Arg Arg Tyr Lys Thr Lys Arg Lys Gln
                                     90
                                                          95
 Leu Ser Ser Glu Leu Gly Asp Leu Glu Lys His Ser Ser Leu Pro Ala
             100
                                 105
 Leu Lys Glu Glu Ala Phe Ser Arg Ala Ser Leu Val Ser Val Tyr Asn
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                                                 125
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Leu Tyr Met Ala Ala Pro Gln Ile Arg Lys Met Leu Ser Ser Gly Val
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Cys Thr Ser Thr Val Gln Leu Pro Gly Lys Val Val Val Thr Gly
                                                45
Ala Asn Thr Gly Ile Gly Lys Glu Thr Ala Lys Glu Leu Ala Gln Arg
                        55
                                            60
Gly Ala Arg Val Tyr Leu Ala Cys Arg Asp Val Glu Lys Gly Glu Leu
                                        75
Val Ala Lys Glu Ile Gln Thr Thr Gly Asn Gln Gln Val Leu Val
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90

110

Arg Lys Leu Asp Leu Ser Asp Thr Lys Ser Ile Arg Ala Phe Ala Lys

Gly Phe Leu Ala Glu Glu Lys His Leu His Val Leu Ile Asn Asn Ala 120 Gly Val Met Met Cys Pro Tyr Ser Lys Thr Ala Asp Gly Phe Glu Met

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140
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His Ile Gly Val Asn His Leu Gly His Phe Leu Leu Thr His Leu Leu
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                    150
145
Leu Glu Lys Leu Lys Glu Ser Ala Pro Ser Arg Ile Val Asn Val Ser
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                                     170
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Ser Leu Ala His His Leu Gly Arg Ile His Phe His Asn Leu Gln Gly
                                                     190
                                 185
            180
Glu Lys Phe Tyr Asn Ala Gly Leu Ala Tyr Cys His Ser Lys Leu Ala
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                            200
Asn Ile Leu Phe Thr Gln Glu Leu Ala Arg Arg Leu Lys Gly Ser Gly
                                             220
                        215
    210
Val Thr Thr Tyr Ser Val His Pro Gly Thr Val Gln Ser Glu Leu Val
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                    230
Arg His Ser Ser Phe Met Arg Trp Met Trp Trp Leu Phe Ser Phe Phe
                                     250
                                                         255
                245
Ile Lys Thr Pro Gln Gln Gly Ala Gln Thr Ser Leu His Cys Ala Leu
                                                     270
                                 265
            260
Thr Glu Gly Leu Glu Ile Leu Ser Gly Asn His Phe Ser Asp Cys His
                                                 285
                             280
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Val Ala Trp Val Ser Ala Gln Ala Arg Asn Glu Thr Ile Ala Arg Arg
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                                                                         120
 getgeettae aagtattaaa tattttaett ettteeataa agagtagete aaaatatgea
                                                                         180
 attaatttaa taatttotga tgatggtttt atotgoagta atatgtatat catotattag
                                                                         240
 aatttactta atgaaaaact gaagagaaca aaatttgtaa ccactagcac ttaagtactc
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                                                                         344
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accaggattg gaattttata aaaatattgt tgatgggaag ttgctaaagg gtgaattact
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  aagtgccact gtggaaagag ttcctgtgtg tgctgaagtt ctgaagggca gtcaaattca
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  tcagcatggg ctgtttggtg caaatgcaaa agcacaggtc tttttagcat gctggtctct
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  cccgtgtcct tatgcaaata atcgtcttct tctaaatttc tcctaggctt cattttccaa
                                                                          420
  agticitett ggtitgtgat gteittetg etttecatta attetataaa atagtatgge
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 cttgtaacte teettetee tttetteee tttetteee tttetetgee egeettteee atcetgetgt
                                                                         120
                                                                         180
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 ggggtagttg gaagggactg aaattgtggg gggaaggtag gaggcacatc aataaagagg
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gcgtgggcca ggaaatcaca tcctacactg cccaggagcc agacacattt atggaacaga
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aaataacata teggatttgg agagacactg ccaactgget ggagattaat ceggacactg
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                                                                        240
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ctaagtettg ttaccaaaaa aaggaaaaag aaaagatett eteagttaca aattetggga
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agaaaggett tetattteac tggcccaggt agggggaagg agagtaactt tgagtetgtg
                                                                            240
ggtctcattt cccaaggtgc cttcaatgct catnaaaacc aa
                                                                            282
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                                                                            201
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       <211> 251
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                                                                             300
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                                                                             420
 ctgtgatatt tgccagtttg gtgcagaatg tgacgaagat gccgaggatg tctggtgtgt
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 ttatgataat gcatgccaaa tcaaagaagc atcgtgtcag aaacaggaga aaattgaagt
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  ccacatacet tgteeggaae attacaatgg ettetgeatg catgggaagt gtgagcatte
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                                                                                780
  tatcaatatg caggagccat cttgcaggtg tgatgctggt tatactggac aacactgtga
                                                                               840
  aaaaaaggac tacagtgttc tatacgttgt teceggteet gtacgattte agtatgtett
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  aatcgcag
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 cattaacttg attitaaaat cagwtitgyg agtcatttac cacaagctaa atgtgtacac
 tatgataaaa acaaccattg tattcctgtt tttctaaaca gtcctaattt ctaacactgt
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                                                                               360
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 caggetgegt teegteetta egatgaagae caegatgeag ttteeaaaca ttgeeactae
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                                                                              251
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gtatccaaaa gcaaaacagc agatatacaa aattaaagag acagaagata gacattaaca
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gataaggcaa cttatacatt gacaatccaa atccaataca tttaaacatt tgggaaatga
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                                                                             180
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                                                                         180
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attagatttt cttgacttgt atgtatctgt gagatcttga ataagtgacc tgacatctct
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<213> Homo sapien

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                                                                             120
  gagtttaaac tgagagaagc aagtgcttaa actgaaggat gtgttgaaga agaagggaga
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  gtagaacaat ttgggcagag ggaaccttat agaccctaag gtgggaaggt tcaaagaact
                                                                             240
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                                                                       120
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180
geogeocog cataaccgte agactggeet gtaacggett geaggegeae geogeacgeg
cgtaacggct tggctgccct gtaacggctt gcacgtgcat gctgcacgcg cgttaacggc
                                                                          240
ttggctggca tgtagccgct tggcttggct ttgcattytt tgctkggctk ggcgttgkty
                                                                          300
tettggattg acgetteete ettggatkga egttteetee ttggatkgae gttteytyty
                                                                          360
                                                                          420
tegegtteet ttgetggact tgacetttty tetgetgggt ttggcattee tttggggtgg
gctgggtgtt ttctccgggg gggktkgccc ttcctggggt gggcgtgggk cgccccagg
                                                                          480
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gggcgtgggc tttccccggg tgggtgtggg ttttcctggg gtggggtggg ctgtgctggg
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gtaacntgct agttggtgaa actggttggt agacgcgatc tgctggtact actgtttctc
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                                                                          720
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                                                                          840
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                                                                         1020
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                                                                         1440
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acctaattat ctaagacttt attttaaata ttgttatttt caaagaagca ttagagggta
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cagtttttt tttttaaatg cacttctggt aaatactttt gttgaaaaca ctgaatttgt
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aaaaggtaat acttactatt tttcaatttt tccctcctag gatttttttc ccctaatgaa
                                                                         1680
                                                                         1740
tgtaagatgg caaaatttgc cctgaaatag gttttacatg aaaactccaa gaaaagttaa
                                                                         1800
acatgittca gigaatagag atccigqicc titggcaagi tcciaaaaaa cagtaataga
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gegettgrgg agactmegat gacagygeet teatggagee caggtaceae greegtggag
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aagatctgga caagctccac agagctgccc tggtggggta aagtccccag aaaggatctc
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catctggcct ctgccaatgg gaattcagaa gtagtaaaac tcstgctgga cagacgatgt
                                                                          360
caacttaatg toottgacaa caaaaagagg acagototga yaaaggoogt acaatgooag
                                                                          420
gaagatgaat gtgcgttaat gttgctggaa catggcactg atccaaatat tccagatgag
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                                                                          660
                                                                          720
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                                                                          840
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ttgccctgaa ataggtttta catgaaaact ccaagaaaag ttaaacatgt ttcagtgaat
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ggagactacg atgacagtgc cttcatggag cccaggtacc acgtccgtgg agaagatctg
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                                                                           420
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                                                                           660
accactetge actaegetat etataatgaa gataaattaa tggecaaage actgetetta
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                                                                          960
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gccagagagt atgctgtttc tagtcatcat catgtaattt gccagttact ttctgactac
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<213> Homo sapien

<400> 374

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							180
		990900000	. Cuuciceer	, EUCEUCSUAV	. ~~~~+~~~~		240
		gagaccacqu	Cyactetact	. alugaagacac	, LC34433437	~~+~	300
			CLUCLUCAU	uuqaacaaca	202002200+	~~~~~	360
		a cyacay cyc	CLLCALUUAU	CCCAGGTACC	200toox+~~		420
		~~ugagetq	- cuuluaaaa	aaagreeeea	7222772tat	~~+~~+~~+~	480
			Canuaguuac	aducaaaada	TO A C TO CO TO C TO C		540
		ggaacccaga	aytaytaaaa	CECCEGCEGG	_ acadacdata	+	600
	,	acadaagag	<b>yacaucticle</b>	ataaaddccd	Tacaatacca	~~~~~~~~~	660
	-gegetaa	ryrrycryga	acatoocact	gatccaaata	ttccaaataa	~+ ~+ ~~ ~ ~ ~ ~	720
	accacacac	actacyctat	Clataatoaa	gataaattaa	taaccaaaaa	~~+~~+~~	780
	gg-cg-cg	acaccyaacc	aaaaaacaac	Catggcctca	Caccactatt	20++	840
	-acgageaaa	aacaycaayt	COLOAAATTT	TTAAtcaaca	22222444		900
	ggacagac	aryyaayyac	LUCECECATA	CTTOCTOTAL	attataasta.		960
							1020
	, <del></del>	acyclyttt	LautCatCat	Cardraartt	$\alpha \circ \alpha \circ \alpha + + \circ \alpha +$	++-+	1020
		-gacyccaaa	aattttttt	uaaaacacca	<b>ネナハハコハココハコ</b>	~~~~	1140
	9	aggaagagee	acaaaggttc	aaaggcagtg	aaaataacca	~~~~~~~	1200
		uaccayaaat	aaataauuat	udtdatadad	annttnaana	202224000	1260
•	gca c gaaa	gradiatige	gggattacta	gaaaacctga	ctaatggtgt	cactactaca	1320
•	-arggraucu	acygactaat	Luctudaaagg	aadadcadaa	Cacctgaaaa	+	1380
•	Jergacaacg	aaayuyaaya	qtatcacaga	atttqcqaat	tagtttgtgt	ataaaaa	1440
•	addagatgt	CaaaalaCLC	lictgaaaac	agcaacccag	22022020++	22244	1500
		agccacaaaq	<b>uccuaquac</b>	autgaaaatg	CCCCCCCCCC	ant	1560
		ccyaayaaat	yaayaaycac	ddaadtactc	atateaaatt	0000000000	1620
•	regactaatg	gryccactge	rggcaarggt	gatgatggat	taattcctcc	220022000	1680
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•	Jadacyaca	cccayaayca	attttgtgaa	Gaacagaaca	ctggaatatt	2020	
_	.ccccgaccc	aryaayaaaa	ucauatagaa	araattaaaa	aaatraaatta	+	1800
		agaaaaa	ayacatcttu	catgaaaara	atacattaca .	~~~~~~++	1860
g	rccatgctaa	gactggagct	agacacaatg	aaacatcaga	gccagctaaa	yyuayaaail	1920
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<210> 375

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                                                                      300
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                                                                      420
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                                                                      660
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                                                                     1200
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                                                                     1260
                                                                     1320
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                                                                     1440
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tcagaggaag agtcacaaag gcttgagggc agtgaaaatg gccagccaga gaaaagatct
                                                                     1560
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                                                                     1680
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                                                                     1800
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            20
Glu Tyr Thr Ile Val His Ala Ser Phe Ile Ser Cys Ile Ser Ser Ser
                                                 45
                            40
Leu Asp Gly Gln Gly Glu Arg Gln Glu Gln Arg Gly His Phe Trp Arg
 Pro Gln Arg Leu Cys Glu Asp Ala Trp Glu Gln Glu Val Gln Val
                                        75
                     70
 Val Leu Pro Leu Leu Pro Leu Leu Gln Gly Ser Gly Lys Ser Asn Val
                                    90
                85
Val Ala Trp Gly Asp Tyr Asp Asp Ser Ala Phe Met Asp Pro Arg Tyr
                                105
                                                    110
            100
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His Val His Gly Glu Asp Leu Asp Lys Leu His Arg Ala Ala Trp Trp 120

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Gly Lys Val Pro Arg Lys Asp Leu Ile Val Met Leu Arg Asp Thr Asp
                        135
                                            140
Val Asn Lys Arg Asp Lys Gln Lys Arg Thr Ala Leu His Leu Ala Ser
                   150
                                        155
Ala Asn Gly Asn Ser Glu Val Val Lys Leu Val Leu Asp Arg Cys
                165
                                   170
Gln Leu Asn Val Leu Asp Asn Lys Lys Arg Thr Ala Leu Thr Lys Ala
            180
                                185
Val Gln Cys Gln Glu Asp Glu Cys Ala Leu Met Leu Leu Glu His Gly
       195
                            200
                                               205
Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn Thr Thr Leu His Tyr
                       215
                                            220
Ala Val Tyr Asn Glu Asp Lys Leu Met Ala Lys Ala Leu Leu Tyr
                    230
                                       235
Gly Ala Asp Ile Glu Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu
               245
                                   250
Leu Gly Ile His Glu Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys
           260
                              265
Lys Lys Ala Asn Leu Asn Ala Leu Asp Arg Tyr Gly Arg Thr Ala Leu
                           280
                                               285
Ile Leu Ala Val Cys Cys Gly Ser Ala Ser Ile Val Ser Pro Leu Leu
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                                          300
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<211> 148

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

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<400> 377

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<210> 378

<211> 1719

<212> PRT

## <213> Homo sapien

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46					470					47	5				480
				48	5				49	s Cys	s His			499	Cys
Cys	s Ar	g Gl	y Se: 50	r Gly	y Ly:	s Se	r Ly	s Vai	l Gl	y Ala	a Trp	Gl	y Ası 510	э Туг	Asp
Asp	Se	r Ala 51	a Phe 5	e Met	t Glu	ı Pro	520	Ty:	r His	s Val	l Arg	Gly 525	y Gli	ı Asp	Leu
	530	,				53:	5				540	Pro	Arg		Asp
243	,				22(	,				555	Lys	Lys			Gln 560
Lys	Arg	y Thi	c Ala	1 Leu 565	His	Le	ı Ala	a Ser	Ala 570	a Asr	Gly	Asr	n Ser	Glu 575	Val
			580	)				585	5	n Leu			590	Asp	Asn
		595	)				600	)		l Glm		605	Glu	Asp	
	OTO	,				615	)			: Asp	620				
025	)				630	1				1le 635					640
				645	1				650	Ala				655	Lys
			660	)				665		Gly			670		_
		0/5	,				680			Lys		685			
	690					695				Leu	700		_	_	_
705					710					Gln 715					720
				125					730	Glu				735	
			740					745		Asp			750		
		/55					760			Pro		765	_		_
	//0					775				Lys	780				
700					790					Ile 795					800
				805					810	Glu				Ω15	
			820					825		Ala			ጸ3በ		
		835					840			Pro		845			
	820					855				Ile	860				
862					870					Ser 875					880
				885					890	Glu				895	
			900					905		Glu			910		
		915					920			Val		925			
	930					935				Asp	940				
945					950					Gln 955					960
voli	GIU	G L U	TAL	UTS	ser	ASP	GIU	GID	Asn	Asp	Thr	Gln	Lys	Gln	Phe

				965					970					975	
_			980				Ile	985					990		
		995	Gln				Val 1000	)				1005	•		
	1010	)				1015					1020	)			
1025	5				1030	)	Arg			1035	5				104
				1045	5		His		1050	)				1055	•
			1060	)			Lys	1065	5				1070	)	
_		1075	5				Phe 1080	)				1085	)		
	1090	)				1095					1100	)			
1109	;				1110	)	Trp			111:	5				112
				112	5		Val		1130	)				113	•
			1140	)			Asn	114	5				1150	)	
		1159	5				Ser 1160	)				116	5		
	1170	2				117	Phe 5				1180	)			
1185	5				1190	)	His			1193	5 .				120
	_			120	5		Met		1210	0				1213	<b>-</b>
_	_		122	0			Ala	122	5				1230	)	
		123	5				Leu 124	0				124	5		
	125	0				125					126	0			
126	5				127	0	Met			127	5				128
				128	5		Asn		129	U				129	9
			130	0			Lys	130	5				1310	)	
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	133	0				133	Val				134	U			
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				136	5		Ile		137	0				13/	5
			138	0			Leu	138	5				139	U	
		139	5				Val 140	0				140	5		
_	141	0				141	Ile 5				142	0			
1/2	5				143	0	Glu			143	5				144
Ser	Glu	Asn	Ser	144	5		Lys		145	0				145	5
-		~ 1								IVI CO T	1.76	1.V~	n 1 **		435

1460 1465 1470 Asn Asn Val Gly Leu Leu Glu Asn Leu Thr Asn Gly Val Thr Ala Gly 1475 . 1480 1485 Asn Gly Asp Asn Gly Leu Ile Pro Gln Arg Lys Ser Arg Thr Pro Glu 1495 1490 1500 Asn Gln Gln Phe Pro Asp Asn Glu Ser Glu Glu Tyr His Arg Ile Cys 1505 1510 1515 152 Glu Leu Val Ser Asp Tyr Lys Glu Lys Gln Met Pro Lys Tyr Ser Ser 1525 1530 1535 Glu Asn Ser Asn Pro Glu Gln Asp Leu Lys Leu Thr Ser Glu Glu Glu 1540 1545 1550 Ser Gln Arg Leu Glu Gly Ser Glu Asn Gly Gln Pro Glu Lys Arg Ser 1555 1560 1565 Gln Glu Pro Glu Ile Asn Lys Asp Gly Asp Arg Glu Leu Glu Asn Phe 1570 1575 1580 Met Ala Ile Glu Glu Met Lys Lys His Gly Ser Thr His Val Gly Phe 1585 1590 1595 160 Pro Glu Asn Leu Thr Asn Gly Ala Thr Ala Gly Asn Gly Asp Asp Gly 1605 1610 Leu Ile Pro Pro Arg Lys Ser Arg Thr Pro Glu Ser Gln Gln Phe Pro 1620 1625 Asp Thr Glu Asn Glu Glu Tyr His Ser Asp Glu Gln Asn Asp Thr Gln 1635 1640 1645 Lys Gln Phe Cys Glu Glu Gln Asn Thr Gly Ile Leu His Asp Glu Ile 1650 1655 1660 Leu Ile His Glu Glu Lys Gln Ile Glu Val Val Glu Lys Met Asn Ser 1670 1675 Glu Leu Ser Leu Ser Cys Lys Lys Glu Lys Asp Ile Leu His Glu Asn 1685 1690 1695 1685 1690 1695 Ser Thr Leu Arg Glu Glu Ile Ala Met Leu Arg Leu Glu Leu Asp Thr 1700 1705 Met Lys His Gln Ser Gln Leu 1715

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Leu His Leu Ala Ser Ala Asn Gly Asn Ser Glu Val Val Lys Leu Leu Leu Asp Arg Arg Cys Gln Leu Asn Val Leu Asp Asn Lys Lys Arg Thr Ala Leu Ile Lys Ala Val Gln Cys Gln Glu Asp Glu Cys Ala Leu Met Leu Leu Glu His Gly Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn Thr Thr Leu His Tyr Ala Ile Tyr Asn Glu Asp Lys Leu Met Ala Lys Ala Leu Leu Tyr Gly Ala Asp Ile Glu Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu Gly Val His Glu Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys Lys Lys Ala Asn Leu Asn Ala Leu Asp Arg Tyr Gly Arg Thr Ala Leu Ile Leu Ala Val Cys Cys Gly Ser Ala Ser Ile Val Ser Leu Leu Glu Gln Asn Ile Asp Val Ser Ser Gln Asp Leu Ser Gly Gln Thr Ala Arg Glu Tyr Ala Val Ser Ser His His Wal Ile Cys Gln Leu Leu Ser Asp Tyr Lys Glu Lys Gln Met Leu Lys Ile Ser Ser Glu Asn Ser Asn Pro Glu Gln Asp Leu Lys Leu Thr Ser Glu Glu Glu Ser Gln Arg Phe Lys Gly Ser Glu Asn Ser Gln Pro Glu Lys Met Ser Gln Glu Pro Glu Ile Asn Lys Asp Gly Asp Arg Glu Val Glu Glu Glu Met Lys Lys His Glu Ser Asn Asn Val Gly Leu Leu Glu Asn Leu Thr Asn Gly Val Thr Ala Gly Asn Gly Asp Asn Gly Leu Ile Pro Gln Arg Lys Ser Arg Thr Pro Glu Asn Gln Gln Phe Pro Asp Asn Glu Ser Glu Glu Tyr His Arg Ile Cys Glu Leu Val Ser Asp Tyr Lys Glu Lys Gln Met Pro Lys Tyr Ser Ser Glu Asn Ser Asn Pro Glu Gln Asp Leu Lys Leu Thr Ser Glu Glu Glu Ser Gln Arg Leu Glu Gly Ser Glu Asn Gly Gln Pro Glu Leu Glu Asn Phe Met Ala Ile Glu Glu Met Lys Lys His Gly Ser Thr His Val Gly Phe Pro Glu Asn Leu Thr Asn Gly Ala Thr Ala Gly Asn Gly Asp Asp Gly Leu Ile Pro Pro Arg Lys Ser Arg Thr Pro Glu Ser Gln Gln Phe Pro Asp Thr Glu Asn Glu Glu Tyr His Ser Asp Glu Gln Asn Asp Thr Gln Lys Gln Phe Cys Glu Glu Gln Asn Thr Gly Ile Leu His Asp Glu Ile Leu Ile His Glu Glu Lys Gln Ile Glu Val Val Glu Lys Met Asn Ser Glu Leu Ser Leu Ser Cys Lys Lys Glu Lys Asp Ile Leu His Glu Asn Ser Thr Leu Arg Glu Glu Ile Ala Met Leu Arg Leu Glu Leu Asp Thr Met Lys His Gln Ser Gln Leu 

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Gly Asp Arg Glu Leu Glu Asn Phe Met Ala Ile Glu Glu Met Lys Lys
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                          535
His Gly Ser Thr His Val Gly Phe Pro Glu Asn Leu Thr Asn Gly Ala
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Thr Ala Gly Asn Gly Asp Asp Gly Leu Ile Pro Pro Arg Lys Ser Arg
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Thr Pro Glu Ser Gln Gln Phe Pro Asp Thr Glu Asn Glu Glu Tyr His
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Ser Asp Glu Gln Asn Asp Thr Gln Lys Gln Phe Cys Glu Glu Gln Asn
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Thr Gly Ile Leu His Asp Glu Ile Leu Ile His Glu Glu Lys Gln Ile
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Lys Lys Asp Arg Ala Trp Leu Arg Cys Pro Glu Ala Val Ala Gly Phe
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Ser Asp Asp Glu Asp Asp Leu Gly Val Ala Pro Gly Leu Ala Pro Ala
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Trp Ala Leu Thr Gln Pro Pro Ser Gln Ser Pro Gly Pro Gln Ser Leu
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  <213> Homo sapiens
  <400> 395
  ggcaaaactg tgtgacctca ataagacctc gcagatccaa ggtcaagtat cagaagtgac 60
  tetgacettg gactecaaga cetacateaa cagcetgget atattagatg atgagecagt 120
  tatcagaggt ttcatcattg cggaaattgt ggagtctaag gaaatcatgg cctctgaagt 180
 attcacgtct ttccagtacc ctgagttctc tatagagttg cctaacacag gcagaattgg 240 ccagctactt gtctgcaatt gtatcttcaa gaataccctg gccatccctt tgactgacgt 300
 caagttetet ttggaaagee tgggeatete etcaetacag acetetgace atgggaeggt 360
  gcagcctggt gagaccatcc aatcccaaat aaaatgcac
                                                                           399
 <210> 396
 <211> 403
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc_feature
 <222> (1) ... (403)
 <223> n = A, T, C or G
 <400> 396
 tggagttntc agtgcaaaca agccataaag cttcagtagc aaattactgt ctcacagaaa 60
 gacattttca acttctgctc cagctgctga taaaacaaat catgtgttta gcttgactcc 120
 agacaaggac aacctgttcc ttcataactc tctagagaaa aaaaggagtt gttagtagat 180
 actaaaaaaa gtggatgaat aatctggata tttttcctaa aaagattcct tgaaacacat 240
 taggaaaatg gagggcctta tgatcagaat gctagaatta gtccattgtg ctgaagcagg 300
 gtttagggga gggagtgagg gataaaagaa ggaaaaaaag aagagtgaga aaacctattt 360 atcaaagcag gtgctatcac tcaatgttag gccctgctct ttt 403
 <210> 397
 <211> 100
 <212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(100)
<223> n = A, T, C or G
<400> 397
actagtncag tgtggtggaa ttcgcggccg cgtcgaccta naanccatct ctatagcaaa 60
tccatccccg ctcctggttg gtnacagaat gactgacaaa
<210> 398
<211> 278
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(278)
<223> n = A, T, C or G
<400> 398
```

```
geggeeget egacageagt teegeeageg etegeeeetg ggtggggatg tgetgeacge 60
ccacctggac atctggaagt cagcggcctg gatgaaagag cggacttcac ctggggcgat 120
tcactactgt gcctcgacca gtgaggagag ctggaccgac agcgaggtgg actcatcatg 180
ctccgggcag cccatccacc tgtggcagtt cctcaaggag ttgctactca agccccacag 240
ctatggccgc ttcattangt ggctcaacaa ggagaagg
<210> 399
<211> 298
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(298)
<223> n = A, T, C or G
<400> 399
acggaggtgg aggaagcgnc cctgggatcg anaggatggg tcctgncatt gaccncctcn 60
ggggtgccng catggagcgc atgggcgcgg gcctgggcca cggcatggat cgcgtgggct 120
ccgagatcga gcgcatgggc ctggtcatgg accgcatggg ctccgtggag cgcatgggct 180
ccggcattga gcgcatgggc ccgctgggcc tcgaccacat ggcctccanc attgancgca 240
tgggccagac catggagcgc attggctctg gcgtggagcn catgggtgcc ggcatggg
<210> 400
<211> 548
<212> DNA
<213> Homo sapiens
<400> 400
acatcaacta cttcctcatt ttaaggtatg gcagttccct tcatcccctt ttcctgcctt 60
gtacatgtac atgtatgaaa tttccttctc ttaccgaact ctctccacac atcacaaggt 120
tgagtetett ttttecaegt ttaaggggee atggeaggae ttagagttge gagttaagae 240
tgcagagggc tagagaatta tttcatacag gctttgaggc cacccatgtc acttatcccg 300
tataccetet caccatecce ttgtetacte tgatgecece aagatgeaac tgggcageta 360
gttggcccca taattctggg cctttgttgt ttgttttaat tacttgggca tcccaggaag 420
ctttccagtg atctcctacc atgggccccc ctcctgggat caagcccctc ccaggccctg 480
tecccagece etectgeece ageccaeeeg ettgeettgg tgeteagece teccattggg 540
agcaggtt
<210> 401
 <211> 355
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc_feature
 <222> (1)...(355)
 <223> n = A, T, C or G
 <400> 401
 actgtttcca tgttatgttt ctacacattg ctacctcagt gctcctggaa acttagcttt 60
 tgatgtctcc aagtagtcca ccttcattta actctttgaa actgtatcat ctttgccaag 120
 taagagtggt ggcctatttc agctgctttg acaaaatgac tggctcctga cttaacgttc 180
 tataaatgaa tgtgctgaag caaagtgccc atggtggcgg cgaagaagan aaagatgtgt 240
 tttgttttgg actctctgtg gtcccttcca atgctgnggg tttccaacca ggggaagggt 300
 cccttttgca ttgccaagtg ccataaccat gagcactact ctaccatggn tctgc
                                                                 355
 <210> 402
 <211> 407
 <212> DNA
 <213> Homo sapiens
```

```
<220>
  <221> misc_feature
  <222> (1)...(407)
  <223> n = A, T, C or G
  <400> 402
  atggggcaag ctggataaag aaccaagacc cactggagta tgctgtcttc aagaaaccca 60
  tetcacatge ggtggcatae ataggetcaa aataaaggaa tggagaaaaa tatttcaage 120
 aaatggaaaa cagaaaaag caggtgttgc actcctactt tctgacaaaa cagactatgc 180
 gaataaagat aaaaaagaga aggacattac aaaggtggtc ctgacctttg ataaatctca 240
 ttgcttgata ccaacctggg ctgttttaat tgcccaaacc aaaaggataa tttgctgagg 300
 ttgtggaget teteccetge agagagtece tgatetecea aaatttggtt gagatgtaag 360
 gntgattttg ctgacaactc cttttctgaa gttttactca tttccaa
                                                                     407
 <210> 403
 <211> 303
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc_feature
 <222> (1) ... (303)
 <223> n = A, T, C or G
 <400> 403
 cagtatttat agccnaactg aaaagctagt agcaggcaag tctcaaatcc aggcaccaaa 60
 tectaagcaa gagecatgge atggtgaaaa tgcaaaagga gagtetggee aatetacaaa 120
 tagagaacaa gacctactca gtcatgaaca aaaaggcaga caccaacatg gatctcatgg 180
 gggattggat attgtaatta tagagcagga agatgacagt gatcgtcatt tggcacaaca 240
 tettaacaac gacegaaace cattatttac ataaacetee atteggtaac catgttgaaa 300
 gga
 <210> 404
 <211> 225
 <212> DNA
<213> Homo sapiens
<400> 404
aagtgtaact tttaaaaatt tagtggattt tgaaaattct tagaggaaag taaaggaaaa 60
attgttaatg cactcattta cctttacatg gtgaaagttc tctcttgatc ctacaaacag 120
acattttcca ctcgtgtttc catagttgtť aagtgtatca gatgtgttgg gcatgtgaať 180
ctccaagtgc ctgtgtaata aataaagtat ctttatttca ttcat
<210> 405
<211> 334
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(334)
<223> n = A, T, C or G
<400> 405
gagctgttat actgtgagtt ctactaggaa atcatcaaat ctgagggttg tctggaggac 60
ttcaatacac ctcccccat agtgaatcag cttccagggg gtccagtccc tctccttact 120
teatececat eccatgeeaa aggaagacee teeteettg geteacagee ttetetagge 180
ttcccagtgc ctccaggaca gagtgggtta tgttttcagc tccatccttg ctgtgagtgt 240
ctggtgeggt tgtgeeteca gettetgete agtgetteat ggacagtgte cageceatgt 300
cactetecae teteteanng tggateceae eeet
```

```
<210> 406
<211> 216
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(216)
<223> n = A, T, C or G
tttcatacct aatgagggag ttganatnac atnnaaccag gaaatgcatg gatctcaang 60
gaaacaaaca cccaataaac tcggagtggc agactgacaa ctgtgagaca tgcacttgct 120
acnaaacaca aatttnatgt tgcacccttg tttctacacc tgtgggttat gacaaagaca 180
actgccaaag aatnttcaag aaggaggact gccant
<210> 407
<211> 413
<212> DNA
<213> Homo sapiens
getgacttgc tagtatcatc tgcattcatt gaagcacaag aacttcatgc cttgactcat 60
gtaaatgcaa taggattaaa aaataaattt gatatcacat ggaaacagac aaaaaatatt 120
gtacaacatt gcacccagtg tcagattcta cacctggcca ctcaggaagc aagagttaat 180
cccagaggtc tatgtcctaa tgtgttatgg caaatggatg tcatgcacgt accttcattt 240
ggaaaattgt catttgtcca tgtgacagtt gatacttatt cacatttcat atgggcaacc 300
tgccagacag gagaaagtct tcccatgtta aaagacattt attatcttgt tttcctgtca 360
tgggagttcc agaaaaagtt aaaacagaca atgggccagg ttctgtagta aag
<210> 408
<211> 183
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(183)
<223> n = A, T, C or G
<400> 408
ggagetngcc ctcaattect ccatntetat gttancatat ttaatgtett ttgnnattaa 60
tnettaacta gttaateett aaagggetan ntaateetta actagteeet ceattgtgag 120
cattatectt ecagtatten cettetnttt tatttactee tteetggeta eccatgtact 180
<210> 409
<211> 250
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc_feature
 <222> (1)...(250)
 <223> n = A, T, C or G
 <400> 409
 cccacgcatg ataagctctt tatttctgta agtcctgcta ggaaatcatc aaatctgacg 60
 gtggtttggg ggacctgaac aaacctcctg taattaatca gctttcagtt tctcccccta 120
 gtccctcctt caacaacata ggaggatcct ccccttcttt ctgctcacgg ccttatctag 180
 getteccagt geecceagga cagegtggge tatgtttaca gegenteett getggggggg 240
                                                                    250
 ggccntatgc
```

```
<210> 410
 <211> 306
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc feature
 <222> (1) ... (306)
 <223> n = A, T, C or G
 <400> 410
 ggctggtttg caagaatgaa atgaatgatt ctacagctag gacttaacct tgaaatggaa 60
 agtettgeaa teccatttge aggateegte tgtgeacatg cetetgtaga gageageatt 120
 cccagggacc ttggaaacag ttggcactgt aaggtgcttg ctccccaaga cacatcctaa 180
 aaggtgttgt aatggtgaaa accgcttcct tctttattgc cccttcttat ttatgtgaac 240
 nactggttgg cttttttgn atcttttta aactggaaag ttcaattgng aaaatgaata 300
 tentac
 <210> 411
 <211> 261
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc_feature
 <222> (1) ... (261)
 <223> n = A, T, C or G
<400> 411
agagatattn cttaggtnaa agttcataga gttcccatga actatatgac tggccacaca 60
ggatettttg tatttaagga ttetgagatt ttgettgage aggattagat aaggetgtte 120
tttaaatgto tgaaatggaa cagatttoaa aaaaaaacoo cacaatotag ggtgggaaca 180
aggaaggaaa gatgtgaata ggctgatggg caaaaaacca atttacccat cagttccagc 240
cttctctcaa ggngaggcaa a
<210> 412
<211> 241
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(241)
<223> n = A, T, C or G
<400> 412
gttcaatgtt acctgacatt tctacaacac cccactcacc gatgtattcg ttgcccagtg 60
ggaacatacc agcctgaatt tggaaaaaat aattgtgttt cttgcccagg aaatactacg 120
actgactttg atggctccac aaacataacc cagtgtaaaa acagaagatg tggagggag 180
ctgggagatt tcactgggta cattgaattc ccaaactacc cangcaatta cccagccaac 240
                                                                   241
<210> 413
<211> 231
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(231)
<223> n = A, T, C or G
```

```
<400> 413
aactettaca atecaagtga eteatetgtg tgettgaate ettteeactg teteatetee 60
ctcatccaag tttctagtac cttctctttg ttgtgaagga taatcaaact gaacaacaaa 120
aagtttacte teeteatttg gaacetaaaa actetetet teetgggtet gagggeteea 180
agaatcettg aatcanttet cagatcattg gggacaccan atcaggaace t
<210> 414
<211> 234
<212> DNA
<213> Homo sapiens
<400> 414
actgtccatg aagcactgag cagaagctgg aggcacaacg caccagacac tcacagcaag 60
gatggagctg aaaacataac ccactctgtc ctggaggcac tgggaagcct agagaaggct 120
gtgagccaag gagggagggt cttcctttgg catgggatgg ggatgaagta aggagaggga 180
ctggaccccc tggaagctga ttcactatgg ggggaggtgt attgaagtcc tcca
                                                                   234
<210> 415
<211> 217
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(217)
<223> n = A, T, C or G
<400> 415
gcataggatt aagactgagt atcttttcta cattcttta actttctaag gggcacttct 60
caaaacacag accaggtage aaateteeac tgetetaagg nteteaceae caetttetea 120
cacctagcaa tagtagaatt cagtoctact totgaggoca gaagaatggt toagaaaaat 180
                                                                    217
antggattat aaaaaataac aattaagaaa aataatc
<210> 416
<211> 213
<212> DNA
<213> Homo sapiens
 <220>
 <221> misc_feature
 <222> (1) ... (213)
 <223> n = A, T, C or G
 <400> 416
 atgcatatnt aaagganact gcctcgcttt tagaagacat ctggnctgct ctctgcatga 60
 ggcacagcag taaagctett tgatteccag aatcaagaac teteccette agactattae 120
 cgaatgcaag gtggttaatt gaaggccact aattgatgct caaatagaag gatattgact 180
                                                                    213
 atattggaac agatggagtc tctactacaa aag
 <210> 417
 <211> 303
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc_feature
 <222> (1) ... (303)
 <223> n = A, T, C or G
 <400> 417
 nagtetteag geceateagg gaagtteaca etggagagaa gteatacata tgtaetgtat 60
```

```
gtgggaaagg ctttactctg agttcaaatc ttcaagccca tcagagagtc cacactggag 120
 agaagecata caaatgeaat gagtgtggga agagetteag gagggattee cattateaag 180
 ttcatctagt ggtccacaca ggagagaaac cctataaatg tgagatatgt gggaagggct 240
 tcantcaaag ttcgtatctt caaatccatc ngaaggncca cagtatanan aaacctttta 300
 agt
 <210> 418
 <211> 328
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc feature
 <222> (1) ... (328)
 <223> n = A, T, C or G
 <400> 418
 tttttggcgg tggtggggca gggacgggac angagtctca ctctgttgcc caggctggag 60
 tgcacaggca tgatetegge teactacaac ceetgeetee catgtecaag egattettgt 120
 geeteageet teeetgtage tagaattaca ggeacatgee accaeaceea getagtttit 180
 gtatttttag tagagacagg gtttcaccat gttggccagg ctggtctcaa actcctnacc 240
 tcagnggtca ggctggtctc aaactcctga cctcaagtga tctgcccacc tcagcctccc 300
 aaagtgctan gattacaggc cgtgagcc
 <210> 419
 <211> 389
 <212> DNA
 <213> Homo sapiens
<220>
 <221> misc_feature
 <222> (1)...(389)
<223> n = A, T, C or G
<400> 419
cctcctcaag acggcctgtg gtccgcctcc cggcaaccaa gaagcctgca gtgccatatg 60
accettgage catggaetgg ageetgaaag geagegtaca ecetgeteet gatettgetg 120
cttgtttcct ctctgtggct ccattcatag cacagttgtt gcactgaggc ttgtgcaggc 180
cgagcaaggc caagctggct caaagagcaa ccagtcaact ctgccacggt gtgccaggca 240
ceggttetec agecaccaac etcacteget ecegeaaatg geacateagt tettetacce 300
taaaggtagg accaaagggc atctgctttt ctgaagtcct ctgctctatc agccatcacg 360
tggcagccac tcnggctgtg tcgacgcgg
<210> 420
<211> 408
<212> DNA
<213> Homo sapiens
<400> 420
gttcctccta actcctgcca gaaacagctc tcctcaacat gagagctgca cccctcctcc 60
tggccagggc agcaagcctt agccttggct tcttgtttct gcttttttc tggctagacc 120
gaagtgtact agccaaggag tigaagtitg tgactttggt gtttcggcat ggagaccgaa 180
gtcccattga cacctttccc actgacccca taaaggaatc ctcatggcca caaggatttg 240
gccaactcac ccagctgggc atggagcagc attatgaact tggagagtat ataagaaaga 300
gatatagaaa attettgaat gagteetata aacatgaaca ggtttatatt egaageacag 360
acgttgaccg gactttgatg aagtgctatg acaaacctgg caagcccg
<210> 421
<211> 352
<212> DNA
<213> Homo sapiens
```

```
<220>
<221> misc feature
<222> (1)...(352)
<223> n = A, T, C or G
<400> 421
getcaaaaat ettttaetg atnggeatgg etacacaate attgaetatt aeggaggeea 60
gaggagaatg aggcctggcc tgggagccct gtgcctacta naagcacatt agattatcca 120
ttcactgaca gaacaggict titttgggtc cttcttctcc accacnatat acttgcagtc 180
ctccttcttg aagattcttt ggcagttgtc tttgtcataa cccacaggtg tagaaacaag 240
ggtgcaacat gaaatttctg tttcgtagca agtgcatgtc tcacaagttg gcangtctgc 300
cacteegagt ttattgggtg tttgttteet ttgagateea tgeattteet gg
<210> 422
<211> 337
<212> DNA
<213> Homo sapiens
<400> 422
atgccaccat gctggcaatg cagcgggcgg tcgaaggcct gcatatccag cccaagctgg 60
cgatgatcga cggcaaccgt tgcccgaagt tgccgatgcc agccgaagcg gtggtcaagg 120
gegatageaa ggtgeeggeg ategeggegg egteaateet ggeeaaggte ageegtgate 180
gtgaaatgge agetgtegaa ttgatetace egggttatgg categgeggg cataaggget 240
atecgacace ggtgcacetg gaageettge ageggetggg geegacgeeg atteacegae 300
gcttcttccg ccggtacggc tggcctatga aaattat
<210> 423
<211> 310
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(310)
 <223> n = A, T, C or G
gctcaaaaat ctttttactg atatggcatg gctacacaat cattgactat tagaggccag 60
aggagaatga ggcctggcct gggagccctg tgcctactan aagcncatta gattatccat 120 tcactgacag aacaggtctt ttttgggtcc ttcttctcca ccacgatata cttgcagtcc 180
teettettga agattetttg geagttgtet ttgteataac ceaeaggtgt anaaacaagg 240
 gtgcaacatg aaatttetgt ttegtageaa gtgcatgtet cacagttgte aagtetgeee 300
 tccgagttta
 <210> 424
 <211> 370
 <212> DNA
 <213> Homo sapiens
 <221> misc_feature
 <222> (1)...(370)
 <223> n = A,T,C or G
 <400> 424
 gctcaaaaat ctttttactg ataggcatgg ctacacaatc attgactatt agaggccaga 60
 ggagaatgag gcctggcctg ggagccctgt gcctactaga agcacattag attatccatt 120 cactgacaga acaggtcttt tttgggtcct tcttctccac cacgatatac ttgcagtcct 180
 cettettgaa gattetttgg cagttgtett tgteataace cacaggtgta gaaacateet 240
 ggttgaatct cctggaactc cctcattagg tatgaaatag catgatgcat tgcataaagt 300
 cacgaaggtg gcaaagatca caacgctgcc cagganaaca ttcattgtga taagcaggac 360
 tccgtcgacg
```

```
<210> 425
 <211> 216
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc_feature
 <222> (1)...(216)
 <223> n = A, T, C or G
 <400> 425
 aattgctatn ntttattttg ccactcaaaa taattaccaa aaaaaaaaa tnttaaatga 60
 taacaacnca acatcaaggn aaananaaca ggaatggntg actntgcata aatnggccga 120
 anattatcca ttatnttaag ggttgacttc aggntacagc acacagacaa acatgcccag 180
 gaggntntca ggaccgctcg atgtnttntg aggagg
 <210> 426
 <211> 596
 <212> DNA
 <213> Homo sapiens
<400> 426
cttccagtga ggataaccct gttgccccgg gccgaggttc tccattaggc tctgattgat 60
tggcagtcag tgatggaagg gtgttctgat cattccgact gccccaaggg tcgctggcca 120
gctctctgtt ttgctgagtt ggcagtagga cctaatttgt taattaagag tagatggtga 180
getgteettg tattttgatt aacctaatgg cetteccage acgaetegga tteagetgga 240
gacatcacgg caacttitaa tgaaatgati tgaagggcca ttaagaggca cttcccgtta 300
ttaggcagtt catctgcact gataacttct tggcagctga gctggtcgga gctgtggccc 360
aaacgcacac ttggcttttg gttttgagat acaactctta atcttttagt catgcttgag 420
ggtggatggc cttttcagct ttaacccaat ttgcactgcc ttggaagtgt agccaggaga 480
atacactcat atactcgtgg gettagagge cacagcagat gtcattggtc tactgcctga 540
gtcccgctgg tcccatccca ggaccttcca tcggcgagta cctgggagcc cgtgct
<210> 427
<211> 107
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(107)
<223> n = A, T, C or G
<400> 427
gaagaattca agttaggttt attcaaaggg cttacngaga atcctanacc caggncccag 60
cccgggagca gccttanaga gctcctgttt gactgcccgg ctcagng
                                                                   107
<210> 428
<211> 38
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(38)
<223> n = A, T, C or G
<400> 428
gaacttccna anaangactt tattcactat tttacatt
                                                                  38
<210> 429
```

```
<211> 544
<212> DNA
<213> Homo sapiens
ctttgctgga cggaataaaa gtggacgcaa gcatgacctc ctgatgaggg cgctgcattt 60
attgaagage ggetgeagee etgeggttea gattaaaate egagaattgt atagaegeeg 120
atatccacga actcttgaag gactttctga tttatccaca atcaaatcat cggttttcag 180
tttggatggt ggctcatcac ctgtagaacc tgacttggcc gtggctggaa tccactcgtt 240
gcettccact teagttacac cteactcace atectetect gttggttetg tgctgcttca 300 agatactaag cceacatttg agatgcagea gceatetece ceaattecte etgtccatec 360
tgatgtgcag ttaaaaaatc tgccctttta tgatgtcctt gatgttctca tcaagcccac 420
gagtttagtt caaagcagta ttcagcgatt tcaagagaag ttttttattt ttgctttgac 480
acctcaacaa gttagagaga tatgcatatc cagggatttt ttgccaggtg gtaggagaga 540
ttat
<210> 430
<211> 507
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(507)
<223> n = A, T, C or G
<400> 430
cttatcncaa tggggctccc aaacttggct gtgcagtgga aactccgggg gaattttgaa 60
gaacactgac acccatcttc caccccgaca ctctgattta attgggctgc agtgagaaca 120
gagcatcaat ttaaaaagct gcccagaatg ttntcctggg cagcgttgtg atctttgccn 180 ccttcgtgac tttatgcaat gcatcatgct atttcatacc taatgaggga gttccaggag 240
attcaaccag gatgtttcta cncctgtggg ttatgacaaa gacaactgcc aaagaatntt 300
caagaaggag gactgcaagt atatcgtggt ggagaagaag gacccaaaaa agacctgttc 360
tgtcagtgaa tggataatct aatgtgcttc tagtaggcac agggctccca ggccaggcct 420
cattetecte tggcetetaa tagteaatga ttgtgtagee atgeetatea gtaaaaagat 480
                                                                        507
ttttgagcaa aaaaaaaaa aaaaaaa
<210> 431
<211> 392
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1) ... (392)
<223> n = A, T, C or G
<400> 431
gaaaattcag aatggataaa aacaaatgaa gtacaaaata tttcagattt acatagcgat 60
aaacaagaaa gcacttatca ggaggactta caaatggaag tacactctan aaccatcatc 120
tatcatggct aaatgtgaga ttagcacagc tgtattattt gtacattgca aacacctaga 180
aagagatggg aaacaaaatc ccaggagttt tgtgtgtgga gtcctgggtt ttccaacaga 240
catcatteca geattetgag attagggnga ttggggatea ttetggagtt ggaatgttea 300
acaaaagtga tgttgttagg taaaatgtac aacttctgga tctatgcaga cattgaaggt 360
                                                                         392
gcaatgagtc tggcttttac tctgctgttt ct
<210> 432
<211> 387
 <212> DNA
 <213> Homo sapiens
<220>
```

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<221> misc_feature
 <222> (1) ... (387)
 <223> n = A, T, C or G
 <400> 432
 ggtatccnta cataatcaaa tatagctgta gtacatgttt tcattggngt agattaccac 60
 aaatgcaagg caacatgtgt agatetettg tettattett ttgtetataa tactgtattg 120
 ngtagtccaa gctctcggna gtccagccac tgngaaacat gctcccttta gattaacctc 180
 gtggacnetn ttgttgnatt gtetgaactg tagngeeetg tattttgett etgtetgnga 240
 attetgttge ttetggggca ttteettgng atgeagagga ceaceacae gatgacagea 300
 atctgaattg ntccaatcac agctgcgatt aagacatact gaaatcgtac aggaccggga 360
 acaacgtata gaacactgga gtccttt
 <210> 433
 <211> 281
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc_feature
 <222> (1) ... (281)
 <223> n = A, T, C or G
 <400> 433
ttcaactagc anagaanact gcttcagggn gtgtaaaatg aaaggcttcc acgcagttat 60
ctgattaaag aacactaaga gagggacaag gctagaagcc gcaggatgtc tacactatag 120 caggenetat ttgggttggc tggaggaget gtggaaaaca tggagagatt ggcgctggag 180
ategeogtgg ctatteeten tigntattac accagngagg nictetgint geceactggt 240
 tnnaaaaccg ntatacaata atgatagaat aggacacaca t
<210> 434
<211> 484
<212> DNA
<213> Homo sapiens
<400> 434
ttttaaaata agcatttagt gctcagtccc tactgagtac tctttctctc ccctcctctg 60
aatttaatte tttcaacttg caatttgcaa ggattacaca tttcactgtg atgtatattg 120 tgttgcaaaa aaaaaaaagt gtetttgtt aaaattactt ggtttgtgaa tecatettge 180 ttttteecca ttggaactag teattaaece atetetgaac tggtagaaaa acatetgaag 240 agetagteta teagcatetg acaggtgaat tggatggte teagaaccat tteacecaga 300
cagcotgttt ctatcotgtt taataaatta gtttgggttc tctacatgca taacaaaccc 360
tgctccaatc tgtcacataa aagtctgtga cttgaagttt agtcagcacc cccaccaaac 420
tttatttttc tatgtgtttt ttgcaacata tgagtgtttt gaaaataaag tacccatgtc 480
ttta
                                                                                484
<210> 435
<211> 424
<212> DNA
<213> Homo sapiens
<400> 435
gegeegetea gageaggtea etttetgeet tecaegteet eetteaagga ageeceatgt 60
gggtagettt caatategea ggttettaet eetetgeete tataagetea aacceaceaa 120
cgatcgggca agtaaacccc ctccctcgcc gacttcggaa ctggcgagag ttcagcgcag 180
atgggcctgt ggggaggggg caagatagat gagggggagc ggcatggtgc ggggtgaccc 240
cttggagaga ggaaaaaggc cacaagaggg gctgccaccg ccactaacgg agatggccct 300 ggtagagacc tttgggggtc tggaacctct ggactcccca tgctctaact cccacactct 360
gctatcagaa acttaaactt gaggattttc tctgtttttc actcgcaata aattcagagc 420
aaac
<210> 436
```

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```
<211> 667
<212> DNA
<213> Homo sapiens
<221> misc feature
<222> (1)...(667)
<223> n = A, T, C or G
<400> 436
accttgggaa nactctcaca atataaaggg tcgtagactt tactccaaat tccaaaaagg 60
tectggecat gtaateetga aagtttteee aaggtageta taaaateett ataagggtge 120
agectettet ggaatteete tgattteaaa gteteaetet caagttettg aaaacgaggg 180
cagttcctga aaggcaggta tagcaactga tcttcagaaa gaggaactgt gtgcaccggg 240
atgggctgcc agagtaggat aggattccag atgctgacac cttctggggg aaacagggct 300
gccaggtttg tcatagcact catcaaagtc cggtcaacgt ctgtgcttcg aatataaacc 360
tottcatott tataggactc attcaagaat titctatatc tetttettat atacteteca 420
agttcataat gctgctccat gcccagctgg gtgagttggc caaatccttg tggccatgag 480
gatteettta tggggteagt gggaaaggtg teaatgggae tteggtetee atgeegaaac 540
accaaagtca caaacttcaa ctccttggct agtacacttc ggtctagcca gaaaaaaagc 600
agaaacaaga agccaaggct aaggcttgct gccctgccag gaggaggggt gcagctctca 660
tgttgag
<210> 437
<211> 693
<212> DNA
<213> Homo sapiens
<400> 437
ctacgtctca accctcattt ttaggtaagg aatcttaagt ccaaagatat taagtgactc 60
acacagocag gtaaggaaag ctggattggc acactaggac totaccatac cgggttttgt 120
taaagctcag gttaggaggc tgataagctt ggaaggaact tcagacagct ttttcagatc 180
ataaaagata attettagee catgttette tecagageag acctgaaatg acageacage 240
aggtactect etatttteac ecetettget tetaetetet ggcagteaga eetgtgggag 300
gccatgggag aaagcagctc tctggatgtt tgtacagatc atggactatt ctctgtggac 360
catttctcca ggttacccta ggtgtcacta ttggggggac agccagcatc tttagctttc 420
atttgagttt ctgtctgtct tcagtagagg aaacttttgc tcttcacact tcacatctga 480
acacctaact gctgttgctc ctgaggtggt gaaagacaga tatagagctt acagtattta 540
toctatttct aggcactgag ggctgtgggg taccttgtgg tgccaaaaca gatcctgttt 600
taaggacatg ttgcttcaga gatgtctgta actatctggg ggctctgttg gctctttacc 660
ctgcatcatg tgctctcttg gctgaaaatg acc
<210> 438
<211> 360
<212> DNA
<213> Homo sapiens
ctgcttatca caatgaatgt tctcctgggc agcgttgtga tctttgccac cttcgtgact 60
ttatgcaatg catcatgcta tttcatacct aatgagggag ttccaggaga ttcaaccagg 120
atgtttctac acctgtgggt tatgacaaag acaactgcca aagaatcttc aagaaggagg 180
actgcaagta tatctggtgg agaagaagga cccaaaaaag acctgttctg tcagtgaatg 240
gataatctaa tgtgcttcta gtaggcacag ggctcccagg ccaggcctca ttctcctctg 300
gcctctaata gtcaataatt gtgtagccat gcctatcagt aaaaagattt ttgagcaaac 360
<210> 439
<211> 431
<212> DNA
<213> Homo sapiens
<221> misc_feature
```

```
<222> (1)...(431)
 \langle 223 \rangle n = A,T,C or G
 <400> 439
gttcctnnta actcctgcca gaaacagctc tcctcaacat gagagctgca cccctcctcc 60
tggccagggc agcaagcett agcettgget tettgtttet getttttte tggctagace 120
gaagtgtact agccaaggag ttgaagtttg tgactttggt gtttcggcat ggagaccgaa 180
 gtcccattga cacctttccc actgacccca taaaggaatc ctcatggcca caaggatttg 240
gccaactcac ccagctgggc atggagcagc attatgaact tggagagtat ataagaaaga 300
 gatatagaaa attettgaat gagteetata aacatgaaca ggtttatatt egaagcacag 360
acgttgaccg gactttgatg agtgctatga caaacctggc agcccgtcga cgcggccgcg 420
aatttagtag t
                                                                      431
<210> 440
<211> 523
<212> DNA
<213> Homo sapiens
<400> 440
agagataaag cttaggtcaa agttcataga gttcccatga actatatgac tggccacaca 60
ggatcttttg tatttaagga ttctgagatt ttgcttgagc aggattagat aaggctgttc 120
tttaaatgto tgaaatggaa cagatttoaa aaaaaaacoo cacaatotag ggtgggaaca 180 aggaaggaaa gatgtgaata ggotgatggg caaaaaacoa atttacocat cagttocago 240
cttctctcaa ggagaggcaa agaaaggaga tacagtggag acatctggaa agttttctcc 300
actggaaaac tgctactatc tgtttttata tttctgttaa aatatatgag gctacagaac 360
taaaaattaa aacctctttg tgtcccttgg tcctggaaca tttatgttcc ttttaaagaa 420
acaaaaatca aactttacag aaagatttga tgtatgtaat acatatagca gctcttgaag 480
tatatatatc atagcaaata agtcatctga tgagaacaag cta
<210> 441
<211> 430
<212> DNA
<213> Homo sapiens
<400> 441
gttcctccta actcctgcca gaaacagctc tcctcaacat gagagctgca cccctcctcc 60
tggccagggc agcaagcett agcettgget tettgtttet getttttte tggctagace 120
gaagtgtact agccaaggag ttgaagtttg tgactttggt gtttcggcat ggagaccgaa 180
gtcccattga cacctttccc actgacccca taaaggaatc ctcatggcca caaggatttg 240
gccaactcac ccagctgggc atggagcagc attatgaact tggagagtat ataagaaaga 300
gatatagaaa attottgaat gagtootata aacatgaaca ggtttatatt cgaagcacag 360
acgttgaccg gactttgatg agtgctatga caaacctggc agcccgtcga cgcggccgcg 420
aatttagtag
                                                                     430
<210> 442
<211> 362
<212> DNA
<213> Homo sapiens
<400> 442
ctaaggaatt agtagtgttc ccatcacttg tttggagtgt gctattctaa aagattttga 60
tttcctggaa tgacaattat attttaactt tggtggggga aagagttata ggaccacagt 120
cttcacttct gatacttgta aattaatctt ttattgcact tgttttgacc attaagctat 180
atgtttagaa atggtcattt tacggaaaaa ttagaaaaat tctgataata gtgcagaata 240
aatgaattaa tgttttactt aatttatatt gaactgtcaa tgacaaataa aaattctttt 300
tgattatttt ttgttttcat ttaccagaat aaaaactaag aattaaaagt ttgattacag 360
<210> 443
<211> 624
<212> DNA
<213> Homo sapiens
```

```
<220>
<221> misc_feature
<222> (1) ... (624)
<223> n = A, T, C or G
<400> 443
tttttttttt gcaacacaat atacatcaca gtgaaatgtg taatccttgc aaattgcaag 60
ttgaaagaat taaattcaga ggaggggaga gaaagagtac tcagtaggga ctgagcacta 120
aatgcttatt ttaaaagaaa tgtaaagagc agaaagcaat tcaggctacc ctgccttttg 180
tgctggctag tactccggtc ggtgtcagca gcacgtggca ttgaacattg caatgtggag 240
cccaaaccac agaaaatggg gtgaaattgg ccaactttct attaacttgg cttcctgttt 300
tataaaatat tgtgaataat atcacctact tcaaagggca gttatgaggc ttaaatgaac 360
taacgcctac aaaacactta aacatagata acataggtgc aagtactatg tatctggtac 420
atggtaaaca toottattat taaagtcaac gotaaaatga atgtgtgtgc atatgctaat 480
agtacagaga gagggcactt aaaccaacta agggcctgga gggaaggttt cctggaaaga 540
ngatgettgt getgggteca aatettggte tactatgace ttggccaaat tatttaaact 600
ttgtccctat ctgctaaaca gatc
<210> 444
<211> 425
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (1)...(425)
<223> n = A, T, C or G
<400> 444
gcacatcatt nntcttgcat tctttgagaa taagaagatc agtaaatagt tcagaagtgg 60
gaagetttgt ccaggeetgt gtgtgaacee aatgttttge ttagaaatag aacaagtaag 120
ttcattgcta tagcataaca caaaatttgc ataagtggtg gtcagcaaat ccttgaatgc 180
tgcttaatgt gagaggttgg taaaatcctt tgtgcaacac tctaactccc tgaatgtttt 240
gctgtgctgg gacctgtgca tgccagacaa ggccaagctg gctgaaagag caaccagcca 300 cctctgcaat ctgccacctc ctgctggcag gatttgttt tgcatcctgt gaagagccaa 360
ggaggcacca gggcataagt gagtagactt atggtcgacg cggccgcgaa tttagtagta 420
gtaga
<210> 445
<211> 414
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(414)
<223> n = A, T, C or G
<400> 445
catgtttatg nttttggatt actttgggca cctagtgttt ctaaatcgtc tatcattctt 60
ttctgttttt caaaagcaga gatggccaga gtctcaacaa actgtatctt caagtctttg 120
tgaaattett tgeatgtgge agattattgg atgtagttte etttaactag catataaate 180
tggtgtgttt cagataaatg aacagcaaaa tgtggtggaa ttaccatttg gaacattgtg 240
aatgaaaaat tgtgtctcta gattatgtaa caaataacta tttcctaacc attgatcttt 300
ggatttttat aatcctactc acaaatgact aggcttctcc tcttgtattt tgaagcagtg 360
 tgggtgctgg attgataaaa aaaaaaaaag tcgacgcggc cgcgaattta gtag
 <210> 446
 <211> 631
 <212> DNA
 <213> Homo sapiens
```

```
<220>
 <221> misc_feature
 <222> (1)...(631)
 <223> n = A, T, C or G
 <400> 446
 acaaattaga anaaagtgcc agagaacacc acataccttg tccggaacat tacaatggct 60
 tctgcatgca tgggaagtgt gagcattcta tcaatatgca ggagccatct tgcaggtgtg 120
 atgctggtta tactggacaa cactgtgaaa aaaaggacta cagtgttcta tacgttgttc 180
 ccggtcctgt acgatttcag tatgtcttaa tcgcagctgt gattggaaca attcagattg 240
 ctgtcatctg tgtggtggtc ctctgcatca caagggccaa actttaggta atagcattgg 300
 actgagattt gtaaactttc caaccttcca ggaaatgccc cagaagcaac agaattcaca 360
 gacagaagca aaatacaggg cactacagtt cagacaatac aacaagagcg tccacgaggt 420
 taatctaaag ggagcatgtt tcacagtggc tggactaccg agagcttgga ctacacaata 480
 cagtattata gacaaaagaa taagacaaga gatctacaca tgttgccttg catttgtggt 540
 aatctacacc aatgaaaaca tgtactacag ctatatttga ttatgtatgg atatatttga 600
 aatagtatac attgtcttga tgtttttct g
                                                                    631
 <210> 447
 <211> 585
 <212> DNA
 <213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(585)
<223> n = A,T,C or G
<400> 447
ccttgggaaa antntcacaa tataaagggt cgtagacttt actccaaatt ccaaaaaggt 60
cctggccatg taatcctgaa agttttccca aggtagctat aaaatcctta taagggtgca 120
gcctcttctg gaattcctct gatttcaaag tctcactctc aagttcttga aaacgagggc 180
agtteetgaa aggeaggtat ageaactgat etteagaaag aggaactgtg tgeaceggga 240
tgggctgcca gagtaggata ggattccaga tgctgacacc ttctggggga aacagggctg 300
ccaggtttgt catagcactc atcaaagtcc ggtcaacgtc tgtgcttcga atataaacct 360
gttcatgttt ataggactca ttcaagaatt ttctatatct ctttcttata tactctccaa 420
gttcataatg ctgctccatg cccagctggg tgagttggcc aaatccttgt ggccatgagg 480
atteetttat ggggteagtg ggaaaggtgt caatgggaet teggteteea tgeegaaaca 540
ccaaagtcac aaacttcaac tccttggcta gtacacttcg gtcta
<210> 448
<211> 93
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(93)
<223> n = A, T, C or G
<400> 448
tgctcgtggg tcattctgan nnccgaactg accntgccag ccctgccgan gggccnccat 60
ggctccctag tgccctggag aggangggc tag
<210> 449
<211> 706
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
```

```
<222> (1)...(706)
<223> n = A, T, C or G
<400> 449
ccaagttcat gctntgtgct ggacgctgga cagggggcaa aagcnnttgc tcgtgggtca 60
ttctgancac cgaactgacc atgccagccc tgccgatggt cctccatggc tccctagtgc 120
cctggagagg aggtgtctag tcagagagta gtcctggaag gtggcctctg ngaggagcca 180
eggggacage atcetgcaga tggtegggeg egteceatte gceatteagg etgegeaact 240
gttgggaagg gcgatcggtg cgggcctctt cgctattacg ccagctggcg aaagggggat 300
gtgctgcaag gcgattaagt tgggtaacgc cagggttttc ccagtcncga cgttgtaaaa 360
cgacggccag tgaattgaat ttaggtgacn ctatagaaga gctatgacgt cgcatgcacg 420
cgtacgtaag cttggatect ctagagegge cgectactae tactaaatte geggeegegt 480
cgacgtggga tccncactga gagagtggag agtgacatgt gctggacnct gtccatgaag 540
cactgagcag aagctggagg cacaacgcnc cagacactca cagctactca ggaggctgag 600 aacaggttga acctgggagg tggaggttgc aatgagctga gatcaggccn ctgcncccca 660
gcatggatga cagagtgaaa ctccatctta aaaaaaaaa aaaaaa
<210> 450
<211> 493
<212> DNA
<213> Homo sapiens
<400> 450
gagacggagt gtcactctgt tgcccaggct ggagtgcagc aagacactgt ctaagaaaaa 60
acagttttaa aaggtaaaac aacataaaaa gaaatateet atagtggaaa taagagagte 120
aaatgaggct gagaacttta caaagggatc ttacagacat gtcgccaata tcactgcatg 180 agcctaagta taagaacaac ctttggggag aaaccatcat ttgacagtga ggtacaattc 240 caagtcaggt agtgaaatgg gtggaattaa actcaaatta atcctgccag ctgaaacgca 300 agagacactg tcagagagtt aaaaagtgag ttctatccat gaggtgattc cacagtcttc 360
tcaagtcaac acatctgtga actcacagac caagttetta aaccactgtt caaactetge 420
tacacatcag aatcacctgg agagetttac aaactcccat tgccgagggt cgacgcggcc 480
                                                                               493
gcgaatttag tag
 <210> 451
 <211> 501
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc_feature
 <222> (1)...(501)
 <223> n = A, T, C or G
 <400> 451
 gggcgcgtcc cattcgccat tcaggctgcg caactgttgg gaagggcgat cggtgcgggc 60
 ctcttcgcta ttacgccagc tggcgaaagg gggatgtgct gcaaggcgat taagttgggt 120 aacgccaggg ttttcccagt cncgacgttg taaaacgacg gccagtgaat tgaatttagg 180
 tgacnctata gaagagctat gacgtcgcat gcacgcgtac gtaagcttgg atcctctaga 240
 geggeegeet actactacta aattegegge egegtegaeg tgggateene actgagagag 300
 tggagagtga catgtgctgg acnctgtcca tgaagcactg agcagaagct ggaggcacaa 360
 cgcnccagac actcacagct actcaggagg ctgagaacag gttgaacctg ggaggtggag 420
 gitgcaatga gctgagatca ggccnctgcn ccccagcatg gatgacagag tgaaactcca 480
                                                                                501
 tottaaaaaa aaaaaaaaa a
 <210> 452
 <211> 51
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc feature
 <222> (1)...(51)
```

```
<223> n = A, T, C or G
 <400> 452
 agacggtttc accnttacaa cnccttttag gatgggnntt ggggagcaag c
                                                                    51
 <210> 453
 <211> 317
 <212> DNA
 <213> Homo sapiens
 <221> misc_feature
 <222> (1)...(317)
 <223> n = A, T, C or G
 <400> 453
 tacatcttgc tttttcccca ttggaactag tcattaaccc atctctgaac tggtagaaaa 60
 acatetgaag agetagteta teageatetg geaagtgaat tggatggtte teagaaceat 120
 ttcacccana cagcctgttt ctatcctgtt taataaatta gtttgggttc tctacatgca 180
 taacaaaccc tgctccaatc tgtcacataa aagtctgtga cttgaagttt antcagcacc 240
 cccaccaaac tttattttc tatgtgtttt ttgcaacata tgagtgtttt gaaaataagg 300
 tacccatgtc tttatta
 <210> 454
 <211> 231
 <212> DNA
 <213> Homo sapiens
<400> 454
ttcgaggtac aatcaactct cagagtgtag tttccttcta tagatgagtc agcattaata 60
taagccacgc cacgctcttg aaggagtctt gaattctcct ctgctcactc agtagaacca 120
agaagaccaa attettetge atcccagett gcaaacaaaa ttgttettet aggtetecae 180
cetteettt teagtgttee aaageteete acaattteat gaacaacage t
<210> 455
<211> 231
<212> DNA
<213> Homo sapiens
<400> 455
taccaaagag ggcataataa tcagtctcac agtagggttc accatcctcc aagtgaaaaa 60
cattgttccg aatgggcttt ccacaggcta cacacacaa acaggaaaca tgccaagttt 120
gtttcaacgc attgatgact tetecaagga tetteetttg geategacea catteagggg 180
caaagaattt ctcatagcac agctcacaat acagggctcc tttctcctct a
<210> 456
<211> 231
<212> DNA
<213> Homo sapiens
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Ala	Gln	Val	Arg 580	Gly	Gly	Met	Val	Phe 585	Glu	Leu	Ala	Asn	Ser 590	Ile	Val

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 Pro
 Phe
 Asp
 Cys
 Arg
 Asp
 Tyr
 Ala
 Val
 Leu
 Arg
 Lys
 Tyr
 Ala

 Asp
 Lys
 11e
 Tyr
 Ser
 Ile
 Ser
 His
 Pro
 Gln
 Glu
 Met
 Lys
 Thr

 G25
 Ser
 Val
 Ser
 Phe
 Asp
 Ser
 Leu
 Phe
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Leu Gly Glu Tyr Ile Arg Lys Arg Tyr Arg Lys Phe Leu Asn Glu Ser 85 90 95

Tyr Lys His Glu Gln Val Tyr Ile Arg Ser Thr Asp Val Asp Arg Thr 100 105 110

Leu Met Ser Ala Met Thr Asn Leu Ala Ala Leu Phe Pro Pro Glu Gly 115 120 125

Val Ser Ile Trp Asn Pro Ile Leu Leu Trp Gln Pro Ile Pro Val His

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Ile Val Ala Asn Pro

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Leu	Leu	Gly	Arg	His 85	Ser	Leu	Phe	His	Pro 90	Glu	Asp	Thr	Gly	Gln 95	Val
Phe	Gln	Val	Ser 100	His	Ser	Phe	Pro	His 105	Pro	Leu	Tyr	Asp	Met 110	Ser	Leu
Leu	Lys	Asn 115	Arg	Phe	Leu	Arg	Pro 120	Gly	Asp	Asp	Ser	Ser 125	His	Asp	Leu
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Val 145	Met	Asp	Leu	Pro	Thr 150	Gln	Glu	Pro	Ala	Leu 155	Gly	Thr	Thr	Суѕ	Tyr 160
Ala	Ser	Gly	Trp	Gly 165	Ser	Ile	Glu	Pro	Glu 170	Glu	Phe	Leu	Thr	Pro 175	Lys
			180		Asp			182					150		
		195	•		Lys		200					203			
	210	h			Ser	215	)				220				
225	•				Leu 230					233	,				
				245					230	,				200	
			260	)	a Asp			263	•				2.0	•	
		27	5		Trp		280	,				20.	,		
	290	)			ı Val	29:	•				300	,			
30	5				310	)				31.	,				-
		•		32					33	U					•
			34	0	s Cy:			34	3				33.		
		35	5		u Ala		36	U				30	J		
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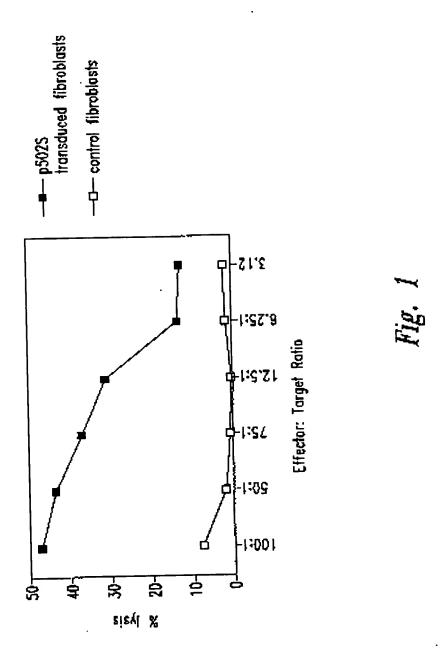
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Se	r Cy	s Le	eu Va 42	al Se 20'	er Gl	у Т	rp G	ly L 4	eu 1 25	Leu	Ala	a As	n G]		rg M 30	et	Pro
Th	r Va	1 Le 43	eu G1 35	ln Cy	ys Va	ıl As	sn Va 44	al S 10	er (	<i>l</i> al	Va]	l Se	r Gl 44	u G1	lu V	al	Cys
Se	r Ly:	s Le O	eu Ty	yr As	sp Pr	O Le	u Ty	yr H	is F	ro,	Ser	Me <sup>-</sup>	t Ph O	e Cy	s A	la	Gly
G1: 46	y Gly	y Gl	n As	p Gl	n Ly 47	s As O	p Se	r C	ys A	sn	Gly 475	/ Ası	o Se	r Gl	.у G	ly	Pro 480
	ı Ile			40	,				4	90					49	95	
	Cys		50	•				5(	75	•				51	0		
	Thr	-	~				32	U					52	5			
	Arg 530					33	<b>5</b>					540	'				
					33(	,					555					5	60
	Ile			50.	,				5 /	0					57	5	
	Phe		500	,				28	5					590	)		
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	Arg 610					013						620					
	Leu				000					•	33					6	40
	Asp			043					65	U					655	ì	
	Leu		000					665	•					670			
	Ser	075					680						685				
	Туг 690					093						700					
Pro	Ala	Ile	Asp	Trp	Asp	Thr	Ser	Ala	Let	ı A.	la I	Pro	Tvr	Leu	Glv	ጥኮ	12

705					710					715					720
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Ala	Glu	Pro 835	Gly	Thr	Glu	Ala	Arg 840	Arg	His	Tyr	Asp	Glu 845	Gly	Val	Arg
Met	Gly 850		Leu	Gly	Leu	Phe 855	Leu	Gln	Cys	Ala	11e 860	Ser	Leu	Val	Phe
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Tyr	Leu	Ala	Ser	Val 885		Ala	Phe	Pro	Val 890	Ala	Ala	Gly	Ala	Thr 895	Cys
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		995	5				100	10				10	,05		Val
	10:	10				10	)15				,	.020			Ala
Pho 10:		ı Leı	ı Sei	r Gl	n Val	L Ala 030	Pro	Se 1	. Le	ı Phe	Met 1035	: Gly	, Ser	Ile	val 1040

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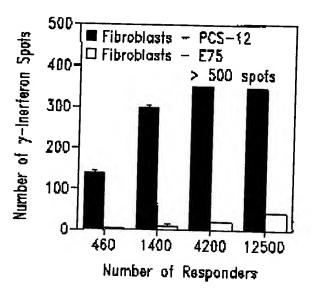


Fig. 2A

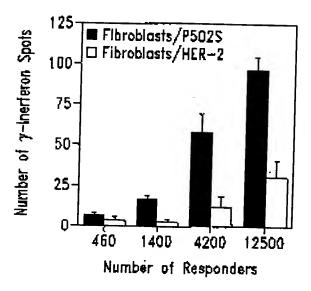
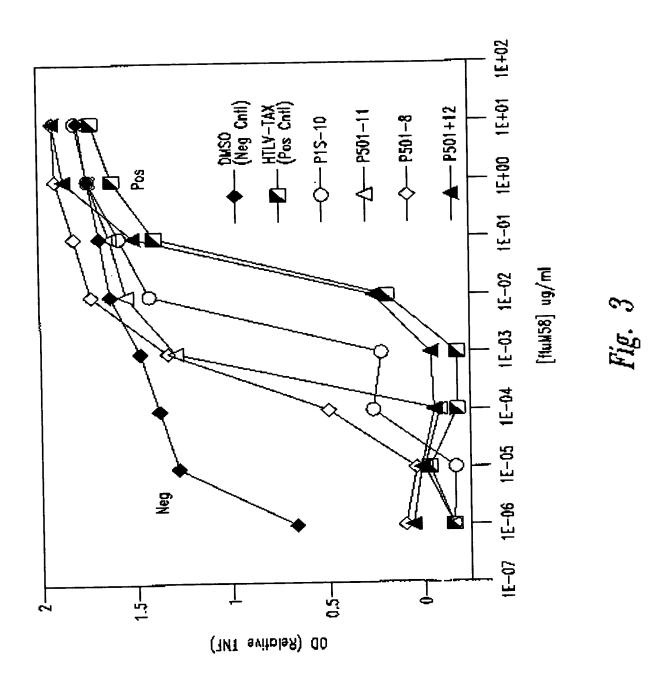
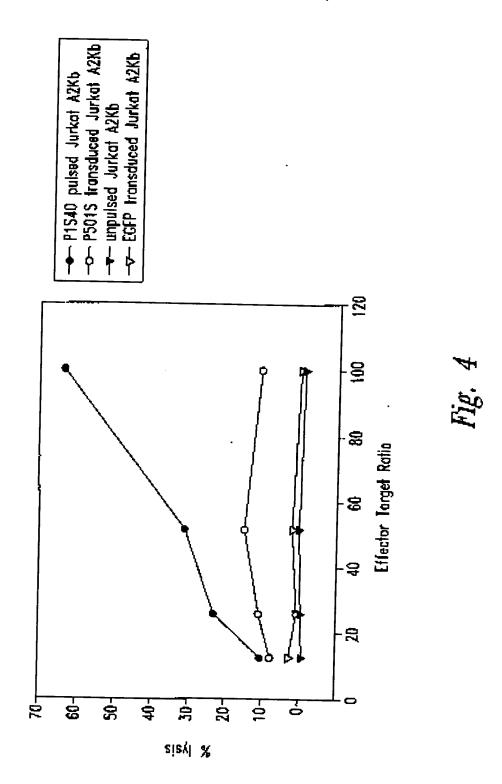


Fig. 2B

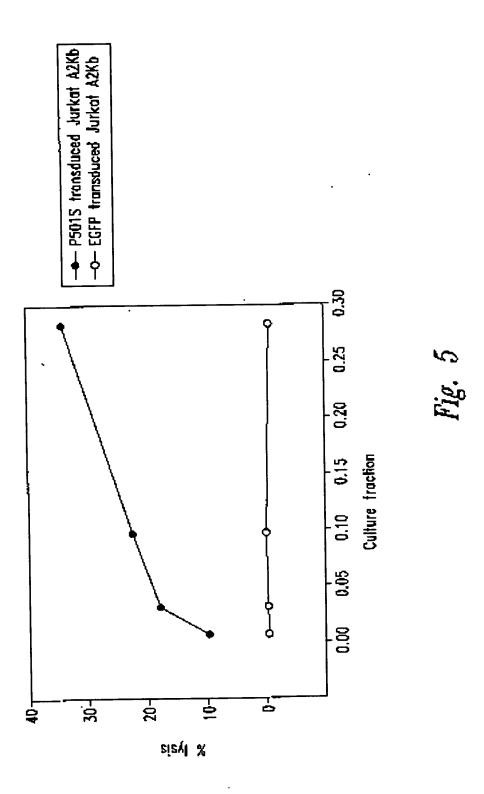


SUBSTITUTE SHEET (RULE 26)



SUBSTITUTE SHEET (RULE 26)

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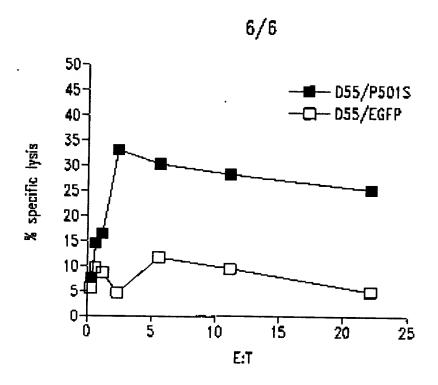


Fig. 6A

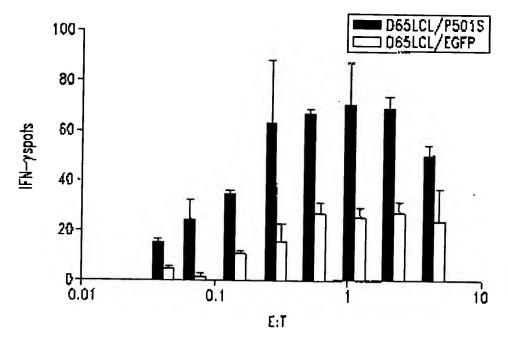


Fig. 6B

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       <120> COMPOSITIONS AND METHODS FOR THE THERAPY AND
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                                                                                          600
                                                                                          660
                                                                                          720
                                                                                          780
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                                                                                          300
                                                                                          360
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                                                                         120
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acqtgggtqa coatqttgtt tgtggggtgc agagatggga ggggtggggc ccaccctgga
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                                                                         54 D
                                                                         600
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                                                                         720
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attitataac aatcaacacc tgiggctitt asaattiggi titcataaga taatitatac
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                                                                                 480
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ttttttttt tttttttt aagaccctca tcaatagatg gagacataca gaaatagtca
                                                                                 120
aaccacatet acassatgee agtateagge ggeggetten aageesaage nalgiliggs
totaaagtga aatattagtt googgatgaa qoagatagtq aggaaagttg agccaataat
                                                                                 180
gacgtgaagt cogtggaage nigiquelac aaaaaalgii gagcogtaga tgccgtcgga
                                                                                 240
antoqtoday oqaqaclicqa aquactotqa qqcttqtaqq aqqqtaaaat aqaqacccaq
                                                                                 300
teseattgle atsegragty cttgeettet ttggtttcgg ttgttttcta ttagactatg
                                                                                 360
qtqaqclcaq qtqattgata ctcctgatqc gagtaatacq gatqtqttta qgaqtggqac
ttctaqggqa tttaqcqggg tgatqcctqt tqggqqccaq tgccctccta qttqqqggqt
                                                                                 120
                                                                                 4BO
aggggetagg etggagtggt aaaaggetem gmaamateet gegmagamam ammettetga ggtmatamat aggattatee egtategmag geetttttgg memggtggtg tgtggtggee
                                                                                 540
                                                                                 600
                                                                                 660
tiggtatgig cittorogig tracatogog coatcatigg tatatggita gigigitggg
                                                                                 720
ttantangge ctantatgas gaacttttgg sniggaatta aatcaainge tiggeoggaa
                                                                                 780
gtcattanga nggctnaaaa ggccctgtta ngggtctggg ctnggtttta cccnacccat
                                                                                 B16
ggaatnonce eccoggacna nignatecet attettaa
        <210> 7
        <211> 817
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1)...(817)
        \langle 223 \rangle n = A, T, C or G
        <400> 7
                                                                                  60
 tttt.i.i.i.ti. ttttttttt tqqctctaga ggqggtaqag qqqgtgctat aqggtaaata
 egggccotat ticasagatt titaggggsa ttaattctag gacgatgggt atgaaactgt
                                                                                 120
 ggtttgetce acagatttca gagcattgac cgtagtatac ccccggtcgt gtagcqgtga
                                                                                 180
```

```
aagtgetitg etttagacet coeggaastte catotetttt taagootaat eteggegacae
                                                                             240
  ctcaleagig caagecetci tetgetetaa icattataen aatoggget teaateggga
                                                                             300
  gtactactog attgccaacg tcsaggagto gcaggtogco tgottctagg aataatgggg
  geagtatgte ggaattgaag attaatccgc cgtagtcggt gttctcctag gttceatecc
                                                                             360
  attogtogcc aattgetttg atggtaaggg gegggetcgt tgaectcgtc tgttatgtas
                                                                             420
 aggatneett ngggetggga aggenatnaa ggaetangga tnaatggegg geangatatt
                                                                             460
 tcasacngtc tctanttcct gasacgtctg sastgttast sansattaan tttngttett
                                                                             540
 geathttnng geseegggt tacaggacta geaaccaast engassents stnnteangg
                                                                             600
 cnttatentn assggtnata accnetecta inateceace caatngnatt eccepenenn
                                                                             660
 achattggat necessantte canaaangge encessegg tgnannesne ettttgttes
                                                                             720
                                                                             780
 cttmantgan ggttattone ecctngentt atcance
                                                                             817
        <210> 8
        <211> 799
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc feature
        <222> (1).\(\bar{1}\), (799)
        <223> n = A, T, C or G
        <400> 8
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 catasggaga actitetget ggcacgeget agggacaage gggagagega etoegagegi
                                                                             60
 ctgeagcgca cqtcccagea ggtggacttg gcactgaaan agctgggace cetccqcgaq
                                                                            120
 tacqaacage geetgaaagt getggagegg gaggtecage agtgtageeg egtectgggg
                                                                            180
                                                                            240
 acctgcctgg gtccaaacac tgagccctgc tggcggactt caagganaac ccccacangg
                                                                            300
 ggattttget cetanantaa ggeteatetg ggeeteggee eececacetg gttggeettg
tetttgangt gageeceatg tecatetggg ceaetgteng gaceacettt ngggagtgtt
                                                                            360
                                                                            420
 etcettacaa coscannaty cooggeteet eccggaaace anteccance tgngaaggat
                                                                            480
                                                                            540
 caagneetyn atecaetnnt netanaaceg geeneeneeg engtygaace encettnigt
 tecttttent tnagggttaa tnnegeettg geettneean ngteetnene ntttteennt
                                                                            600
                                                                            660
 gttmamattg ttangeneee neennteeen ennennenan eeegaeeenn annttnmann
                                                                            720
neetgagget neennenget teecommoc meethtant teenttnegg nachntacc
                                                                            780
otttecetet ngggenneg
                                                                            799
       <210> 9
       <211> 801
       <212> DNA
       <213> Nome sapien
       <220>
       <221> misc_feature
       <222> (1).7.(801)
       <223> n = A, T, C or G
       <400> 9
acquettgat ceteccagge tgggaetggt tetgggagga geogggeatg etgtggtttg
                                                                            60
taangatgac acteecasag gregotectya cagrogocca garogacatg gggeteacet
caaqqacaaq gecaccaggt gegggggeeg aageccacat gateettact etatgageaa
                                                                           120
                                                                           100
mateccetot gggggettet cettgaagte egecaneagg geteagtett tggacecang
cagatestas agtiginane casetagaas concasoses assugance gagectengn
                                                                           240
                                                                           300
cacceatece angaegegge taeactnetg gaecteeene tecaceaett teatgegetg
                                                                           360
ttentaceng equatnique conneighti engigeenac tecanettet nggaogigeg
ctacatacgo orgganione notocogett igicoclate caeginocan caauaaatti encontantg caechattoo caenitinno agnittoone nnoghgotto otiniaaaag
                                                                           420
                                                                           480
                                                                           540
ggttganece eggaaaatne cecaaagggg gggggeengg tacceaactn creectnata
getgaantee ecatnacenn gnetenatgg ancenteent titaannach tietnaactt
                                                                           600
                                                                           660
gggaanance etegocento ecceenttaa tecencetty changoment ecceenntee
necennating gentational characters commanded tetectioned ceteanting
                                                                           720
                                                                           780
```

```
801
 ccancected assteddeen c
       <210> 10
       <211> 789
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc feature
        <222> (1)...(789)
        <223> n - A, T, C or G
        <4D0> 10
 cagtetaint ggecagigty geagetties eigiggeige eggigeeaea impeciateee
                                                                                 60
                                                                                120
 acagtytyge cytygigaea gotteagoog coetcaecyg ytteacette teagocetye
                                                                                180
 agatectace etacacacty gesteestat accaseggga gaageaquiq treetgessa
 aataccgagg ggacactgga ggtgctagca gtgaggacag celgatgacc agettectge
                                                                                240
                                                                                300
 caggeoctaa geotggaget ceetteeeta atggacaegt gegleelega geeagtggee
 tgeteccace tecaceegen etetacogon cotetaceta tgatatetec gtacatgtgg
                                                                                360
                                                                                120
 tggtgggtga goccaccgan gocaqgetqq ttocoggccg gggcatetgc etggacctcg
 coatectgga tagtgettee toctgtecoa notggeeces tecetgttts tgggetecat
                                                                                4 B O
 tytocayoto agocaytoty toactycota tatggtgtot geogragged tyggtotggt
                                                                                540
                                                                                60Q
 countitact tigotacece agrantattt garaagaacg antiggocas atactcageg
 tlasassatt coagcaacat tgggggtgga aggectgeet cactgggtee aacteecege
                                                                                660
 tectottase coestagage taccagetta accacast tetattacta coasantnat suggetetet actacacet attactaget assattants engeneseet nggagagana
                                                                                720
                                                                                780
                                                                                789
gangttaca
        <210> 11
        <211> 772
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1)...(772)
        \langle 223 \rangle n = A,T,C or G
        <400> 11
 cocaccetac commantatta gacaccaaca cagaamaget agematggat tecettetac
                                                                                 60
 tttgttanat naataagtta aatatttaaa tgcctgtgtc tctgtgatgg caacagaagg
                                                                                 120
                                                                                 180
  accaacaggo cacatootga taaaaggtaa gaggggggtg gatcagcaaa aagacagtgo
 tgtgggctga ggggacctgg ttcttgtgtg ttgcccctca ggactcttcc cctacaaata actttcatat gttcaaatcc catggaggag tgtttcatcc tagaaactcc catgcaagag ctacattaaa cgaagctgca ggttaagggg cttanagatg ggaaaccagg tgactgagtt
                                                                                 240
                                                                                 300
                                                                                 360
  tattcagetc ccaaaaaccc ttetetaggt gtgtetcaac taggaggeta getgttaacc
                                                                                 420
  ctgagoctgg gtaatccacc tgcagagtcc ccgcattcca qtgcatqqaa cccltctggc
                                                                                 4BO
  ctccctgtat aagtecagac tgaaacccc ttggaaggne tecagteagg cagectana
                                                                                 510
  aactggggaa aaaagaaaag gacgccccan ccccagotg tgcanctacg cacctcaaca
                                                                                 600
  gcacagggtg gcagcaaaaa aaccacttta ctttagcaca aacassaact ngggggggca
                                                                                 660
  accorgicar occhangege qlisacsuca anchegenes entegasecc astragges
                                                                                 720
  ggocuncum cucnaatntt qctqqqaaat ttl.Lcctccc ctaaattntt to
                                                                                 772
         <210> 12
         <211> 751
         <212> DNA
         <213> Komo sapien
         <220>
         <221> misc_feature
         <222> (1)...(751)
         <223> n = A, T, C or G
```

```
<400> 12
 geoccaatte cagetgecae accacecaeg gtgactgeat tagtteggat gteatacaea
                                                                                  60
 agetgattga agéaaécete taetttttgg fegtgageet ttégetfggt geaggtttea
                                                                                 120
 ttggctgtgt tggtgacgtt gtcattgcaa cagaatgggg gaaaggcact gttctctttg
                                                                                 180
 asglangalg agtectesas atcegtatag ttggtgaage caeageactt gagecettte
                                                                                 240
 atgytygtyt tecacactty agtgaagtet teetgygaac cataatettt ettgatgyca
                                                                                 300
 ggcéctécca gcaacgtcag ggaagtgcte agecattgtg gtgtacacca aggcgaccac
                                                                                 360
 agnagetyen aceteageaa tqaaqatgan gaqqangatg aagaagaaeg tenegaggge
 acacttqctc tcaptettan caccatence gecentgaaa accaananca aagaccacna cneeggetge getgaagaaa tnaccconeg ttgacaaact tgcatggcac tggganccac agtggcccna aaaatettea aaaaggatge cecatenact gaccecccaa atgeccaetg
                                                                                 420
                                                                                 480
                                                                                 540
                                                                                 600
 ccaacagggg ctgcccach chenhaacga tganconatt ghacaagate thenigglet
                                                                                 660
 tostossent geseccetgen ingiggeted igitesgene congectes ettetneson
                                                                                 720
 aangaacton gaagnoccea cnggananne g
                                                                                 751
        <210> 13
        <211> 729
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1)...(729)
        \langle 223 \rangle n = A,T,C or G
        <400> 13
 gagecauged teectetyce tycceactea gtygesacae ecyggagety ttttyteett
                                                                                  ഗ
 tgtgganect cageaginee eletticaga acteanigee aaganeeetg aacaggagee
                                                                                120
accetocage getteagett cattaagace atgatgatee telleautti geteateitt
                                                                                1 B D
ctgtgtgtg cagecetgtt ggeagtggge atetgggtgt caategatgg ggeateettt
                                                                                240
ctgaagatet tegggeeact gtegteeagt geeatgeagt ttgteaaegt gggetaette cteategeag ceggegttgt ggtettaget ctaggtttee tgggetgeta tggtgetaag
                                                                                300
                                                                                360
actgagagca agigigeect egigaegite treffeatce teeteeteat effeatiget
                                                                                420
gaggitigcae tgcigiggte gccitggtgt acaccacaat ggcigagcae ticciqacgt
                                                                                480
tgotggtaat gootgoosto aanaaaaget tatgggttoo caggeanact toactcaegt
                                                                                540
gttggaacac caccatgaaa gggctcaagt gctgtggctt cnnccaacta tacggattit
                                                                                600
gaagantcac ctacttesas gaasenagig cotticecc atticigitis casifigacaa
                                                                                66D
augitocceae cacagocaat igaaeaccig cacccaacco aaangggio ccaaccanea
                                                                                720
elinaaggg
                                                                                729
       <210> 34
       <211> 816
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> {1}...(816)
       <223> n - A, T, C or G
       <4D0> 14
tgctcttcct caaagttgtt cttgttgcca taacaaccac cataggtasa gcgggcgcag
                                                                                60
tgttegetga aggggttgta gtaccagege gggatgetet cettgeagag teetgtgtet
                                                                               120
ggcaggteca egcagtgce tttgtcactg gggaaatgga tgcgctggag ctcgtcaaag
                                                                               180
coactestst attiticaca gecascotes tecsaesest eggsseasit eggsstatet
                                                                               240
teacacteca ggaaactgte natgeageag ecattgetge ageggaactg ggtgggetga canutgecag ageacactgg atggegeett tecatgnnan gggeeetgng ggaaagteee
                                                                               300
                                                                               360
tganocccan anotgeotot casangocco acottgosca eccogacagg ctagastgga
                                                                               420
atellettee egamaggtag tinttettgt tgcccaance aneccentam acamactett
                                                                               480
geanaletge teegngggog tentantace anegtgggaa aagaaceeea ggengegaae
                                                                               540
caanchitolic togathogae genetaatet nethteetge Ctggtggace geecemina
                                                                               600
```

7

```
etginnanci tragnochtg greetenigg gregnnetig aacetaaten connteaact gggacaaggi aaningeent cettinaatt econanenin ecceetggit iggggittin
                                                                                   660
                                                                                   720
                                                                                   780
chenetecta coocagaaan neogtgttoc cececaacta ggggccn&aa conntintte
                                                                                   816
cacascern ecceaceae gggttengnt ggttng
       <210> 15
       <211> 783
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1)... (783)
       <223> n = A, T, C or G
       <400> 15
                                                                                    60
ccaaggootg ggcaggcata nacttgaagg tacaacccca ggaacccctg gtgctgaagg
atgtggaaaa cacacoltgg cgcctactgc ggggtgacac ggatgtcagg gtagagagaaagacccaaa ccacctqaa clqlggggac tcaaggaang cacctacctg ttccagctga
                                                                                   120
                                                                                   180
                                                                                   240
cantigactan ctoagaccec congagnaca conceancet caeagteact stretteca
coasgossac agangactac tgcctcgcat coascaangt gggtcgctgc cggggctctt
                                                                                   300
teccaencia graciatque cecaeggage agatetgeaa gagttiegit tatggagget
                                                                                   360
gettgggcas casquacaac tacetteggg magaagagtg cattetance tgtengggtg
                                                                                   420
Egrasogtgg gootttgama ngcamototg gggotoango gaotttocco cagggoccot coetggamag gogocatoca ntgttototg goacetgtoa goocaccoag thoogolgoa
                                                                                   480
                                                                                   540
nesatggetg etgeatenac antitectng astigtgaca acacececa niquececas
                                                                                   600
ceeteceaac aaagetteec tgttnaaaaa tacneeantt ggetttinae aaaeneeegg
                                                                                   660
enceteentt trecconntn aacaaaggge netngenttt paactgeeen aaceenggaa
                                                                                   720
tetncenngg amamantee ecceetggtt cetnnamee celecnena anctreecce
                                                                                   7BO
                                                                                   7B3
CCC
        <210> 16
        <21],> 801
        <212> DNA
        ceiqea omou <£f$>
        <2220>
        <221> misc_feature
        <222> (1)...(801)
        \langle 223 \rangle n - A,T,C or G
        <400> 16
 geoccaatte cagetgeeae accaeccaeg gtgaetgeat tagileggat gteatacaaa agetgattga ageaaccete tactttttgg tegtgageet tittgettggt geaggittea
                                                                                     60
                                                                                    120
 tiggetgtgt tggtgaegtt gteattgeaa cagaatgggg gaaaggeact gttetetttg
                                                                                    180
 aagtagggtg agtootoasa atoogtatag tiggtgaage cacageactt gagecettte atggtggtgt tooscoottg aglgaagtet teetgggaac catastett ettgatggea
                                                                                    240
                                                                                    300
 ggcactacca gcaacgteag yaaqtqcLca gccattqtgg tgtacaccaa ggcgaccaca
                                                                                    360
 gcagetgeaa ceteageaet geegetgagg aggaggatga agaagaacgt enegagggca
                                                                                    420
                                                                                    480
 capitgotot pugtottago accatagoag cocangadae caagagoaaa gaccacaaeg
 congutyuga atgasagasa ntacccacqt tgacaaactq catggccact ggacqacagt
                                                                                    540
 tygoconaan atottoagae Aagggatgoo coatogattg aacaccoana tgoccactgo
                                                                                    600
 chacangget geneenenen gaaagaatga gecattgaag aaggatente niggiettaa
                                                                                    660
 tyanctoaka centgestag tygecectat teaggartet tygeagtgas ttetganasa
                                                                                    720
 adquarings itnegecese coalangama alacaecese gggtgttges etganttggs
                                                                                    780
                                                                                    801
 ggccaeggan cnctgccccn g
        <210> 17
        <211> 740
         <212> DNA
         <213> Homo sapies
```

```
<220>
        <221> misc feature
        <222> (1) ... (740)
        <223> n = A, T, C \text{ or } G
 gtgagageca ggegteette tgeetgeeea etcagtggea acacceggga getgttttgt
                                                                              бΰ
 cettigiga geeteageag ticcetetti cagaacteae igecaagage ceigaacagg
 agecarcaty cartrettes selleallas saccatsats atestettes attiscleat ettletstat selecasee tottspeast sesenting statesaces attiscleat
                                                                             120
                                                                             180
                                                                             240
 ctttctgees atcttcgggc cectgtcgtc cagtgccatg cagtttgtca ecgtgggcta
                                                                             300
 attenteste gesgeeggeg tigiggtett tgetettggt tieetggget geisiggtge
                                                                             360
 taaganggag agreagtgtg coctogtgac gttcttcttc atcctcctcc tcatclinet
 tgctgaagtt gcagctgetg tggtegcctt ggtgtacacc acaatggetg aaccattoot
                                                                             420
 gacgttgctg gtantgcctg ccatcaanaa agattatggg ttcccaggaa aaattcactc
                                                                             480
 aantniggaa caccoccatg aasagggete caattteign iggetteece aactatereg
                                                                             540
                                                                             600
 gasttitges agentonoco tacttocass sassasnant tgoottinoc coontictgi
                                                                             660
 tgcaatgaaa acntcccaan acngccaatn aaaacctgcc conncaaaaa ggotcncaaa
                                                                            720
 Caasaaaant nnaagggttn
                                                                            740
       <210> 1B
       <211> 802
        <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_fcature
       <222> (1)...(802)
       <223> n - A, T, C or G
       <400> 18
 cogetogtto egetogteca gnopageeac gaageacgte ageatacaca geeteaatea
                                                                             60
 caaggiette cagetgeege acattacgea gggcaagage etceageaac actgcatatg
                                                                            120
 ggatacactt tactttagca gccagggtga caactgagag gtgtcgaagc ttattcttct
                                                                            180
 gagoctotgt tagtggagga agattooggg ottoagctaa gtagtcageg tatgtoccat
                                                                            24 D
 aagcaaacac tgtgagcagc cggaaggtag aggcaaagtc actctcagcc agctctctaa
                                                                            300
cattgggcat gtccagcagt tetccazaca cgtagacacc agnggcctcc agcacctgat
                                                                            360
ggatgagtgt ggccagcget gccccettgg ccgaettggc taggagcaga aattgctoct
                                                                            420
gyttetgece tyteacette actteogeae teateactyc actgaytyty gyggaettyg
                                                                            480
geteaggatg tecaqueach tenttecque contenetta atqueacon commenace quegotece quegantique thentogram eliqueens getetetes
                                                                            540
                                                                            600
aancilogto nggoodatag aatkoadono accagaacto gtangateea cunnilotat
saccoquege caccqconnt ggeactcoac telintlnec titacttgag ggttaagqte
                                                                            660
                                                                           720
eccettance ttacettegt ccaaacentn centetetes anathgines tengencene
                                                                           780
thecandene stangeagee ng
                                                                           802
       <210> 19
       <211> 731
       <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(731)
      <223> n = A, T, C or G
      <400> 19
chaagettee aggthaeggg cegenaanee tgaccenagg tancamaang cagnengegg
                                                                            60
gageccaceg teacgnaging grigtetttat nagagegge ggagecacat enetygaent
                                                                           120
entgacecca acteccence neneanlyca stgatuayty cagaoctgaa ogtnacgtgg
caggaaucaa gancaaanne tgctccnntc caagtcggon nagggggcgg ggclggccac
                                                                           180
                                                                           240
geneateent enagtgeten asageceenn cetetetact tettiggaga aengennnya
                                                                           300
```

```
catquecagn gttanataac nggcngagag tnantttgec tetecettee ggetgegean
                                                                            360
condtatet tagaggacat ascetgacta ettaactgaa cocangaate tacaccect
                                                                            420
coacteaget cagaaceses sacttegaca coacteantt groacetone toetcaagta
                                                                            480
                                                                            540
aagtgtaccc catnecesat gtmtgetnga ngetetgnee tgenttangt teggteetgg
                                                                            600
gaagacctat caattmaagc tatgittcig actgcctctt getccctgna acaanchacc
conconteca agggggggne ggeceecaat ecceccaace otnaattoan titancecco
                                                                            660
                                                                            720
cocconggee eggeetttta enanentenn nnaengggna aaacennnge tttneccaae
                                                                            731
nnaatconce t
      <210> 20
      <211> 754
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1).T. (754)
      <223> n = A, T, C \text{ or } G
      <400> 20
tttttttttt tittttttt taaaaoccc ctccattnaa Lgnaaacttc cgaaattgtc
                                                                             60
                                                                            120
caacccett ntccaaaton conttteegg gnggggtte caaacccaan ttannttigg
                                                                            180
enntteest sestnituot iggnggmms succassigt nangaaagit naacccamia
thanctthes thechgase congingnit coassasint trascetta shicoteeg
                                                                            240
                                                                            300
aeatngttna nggaaaaccc aanttetent aaggttgttt gaaggntnaa tnaaaanecc
nnccaattgt tittngccac gcctgaatta attggnttcc gntgttttcc nttaaaanaa
                                                                            360
ggnnaneece ggttantnaa teececenne eecaattata ceganttttt tingaattgg
                                                                            420
                                                                            480
gancconegg gaattaacgg ggnnnnteec thttgggggg enggnneece eccenteggg
ggttngggnc aggnennaat tgtttaaggg teegaaasat eesteenaga asaaaanete
                                                                            540
ccasentgag nntneggttt nececcecce canggeeect etegnamagt tegggttteg
                                                                            600
ggggcctggg attitutte ecetutine tecececee cenqqqanaq aggitngngt
                                                                            660
tttgntenne ggeeceneen aagametten eeganttnam ttaaateent geetnegega
                                                                            720
                                                                            754
agtecniign agggntaman ggcccccinn cggg
       <210> 21
       <211> 755
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(755)
       \langle 223 \rangle n = A, T, C \text{ or } G
       <400> 21
                                                                             60
 atcanoccat gaccoonaac nngggacono toanooggno nnnemaceno eggeenatea
                                                                            120
 nngtnagnne actmennttm mateacheec encemactae gecomename enacgemeta
                                                                            180
nncanatnee acteamnges equingtique ngaquamet nataceanag neaccanach
coagetytee manaangest unnetsengs unnatessat utgmanecte chasquattn
                                                                            240
monnoanat gatttteetn ancegettec controvene Lancecetec ceccaacha
                                                                            300
upaaggenet ggmconaagg nngegmenee eegetagnte ecenneaagt enemeneeta
                                                                            360
aactowneen mail.acongc tioni.gagta tracteceng aatetracer tacteagte
                                                                             420
                                                                            4BQ
easeaneton getecesset astnosegoo tgnttatnac actntgactg ggtototatt
 ttagnggtoc ntnaancoto cteatactto cagtotnect tenecaattt cenaanggot
                                                                            540
ettlengaes geathettig gitecennit gggitettan ngaatigees tieningaas gggetenict titectiegg tiancetggn tienneegge eagitatiat tiesemittt aastienie entitanit tggentena aaccoecage ettgaaaseg geseetigt
                                                                            600
                                                                            660
                                                                            720
                                                                            755
 AABAGGTTGT TTTGBNABAB TTTTTGETTT GTTCC
       <210> 22
       <211> B49
```

<212> DNA

```
<213> Homo sapien
       <220>
       <221> misc feature
       <222> (1)...(B49)
       <223> n - A,T,C or G
       <400> 22
ttttttttt tttttangtg tngtcgtgca ggtagaggct tactacaant gtgaanacgt
                                                                             60
acgringgan taangcgacc cgantictag gannencect asaatcanac tgigaagain
                                                                            120
atcetgnnna eggaanggte aceggnngat untgetaggg tgneenetee eannmenttn
                                                                            180
cataleteny nggeeetgee caccacette gyeggeeeng ngneegggee egygteattn
                                                                            240
ennttaacen cactongena neggttteen necconneng acconggega teeggggtne
                                                                            3D0
tetgtettee eetgnagnen anaaantggg eeneggneee etttaceeet nnacaageea
                                                                            360
engeenteta nechengees essetesant nngggggast gesnannget segttnetng
                                                                            420
nnacecennn gggtneeteg gttgtegant enacegnang ecanggatte enaaggaagg
                                                                            480
tgcqltnttq gcccctaccc ttcgctncgg nncaccettc ccgacnanga nccgctcccg
                                                                            540
enchanging detendency caacaceege netentengt negginneds deceaceege
                                                                            600
necetenene ngnegnamen etecneence gteteannea ecacecegee ecgecaggee
                                                                            660
ntcancesen gennacine nacciente generação etgogogos equaçoques etnenteneg coantinogo teaanconna enasacece etgogogos equaçoques
                                                                            720
                                                                            780
necteenega gteeteeegn etteenacee angantteen egaggacaen nnaceeegee
                                                                            840
nncangegg
                                                                           849
       <210> 23
       <211> 872
       <212> DNA
       <213> Homo sapien
       <220>
      <221> misc_feature
      <222> (1)...(872)
      <223> n = h_1 T_1 C or G
      <400> 23
gegeasacts tacttegete gnactegtge geotegethe tetttteete egeascatg
                                                                            60
totgachano cogattnggo ngatatohan aaghtogano agtocaaact gantaacaca
                                                                           120
catachenan aganaaatee netgeettee anagtanaen attgaaenng agaaceange
                                                                           180
nggegaateg taatnaggeg tgegeegeea atnigtence gittaitnin ecagentene
                                                                           240
cinecoacce techtetich nagetgienn acceetngin egnaceecce naggieggga
                                                                           300
teggettinn notgacegng concected eccentedat macganeene ecgcaceace
                                                                           360
nanngenege neecegnnet ettegeenee etgteetnin eecetginge etggenengn
                                                                           120
accgrattga coetegeonn etnonngaaa negnanacgt eegggttynn annanegetg
                                                                           480
tgggnnngeg tetgeneege gtteeffeen mennetteea ceateffent taengggtet
                                                                           540
consecrate temmesone cetaggace thicethies essectinas tessecett
                                                                           600
equestonee eguececace nteattinea macentette acaannucet gentumetee
                                                                           660
chancingnes greaternag quaaqqqnqq qqmmcenmtq nttqacqtty nqqmqanqte cqaanantee tencentean emutaceest egggegnnet etengtinge aactlaneae
                                                                           720
                                                                           78D
ntetecceed agagemente teageologe conceenct etalgamic incretecte
                                                                           840
toaccomiac gaminttego encoctettt ec
                                                                           872
      <210> 24
      <211> 815
      <212> DNA
      <213> Home sapien
      <220>
      <221> misc feature
      <222> (1)...(B15)
      <223> n = A,T,C or G
     <400> 24
```

```
gcatgcaage tigagkatte tatagngtea ectaaatane tiggentaat catggtenta
                                                                              .60
                                                                             120
notgnotted tototosaat otataonaan tanatatgaa totoatotga caagamogla
                                                                             180
tentheatta gtaacaantg tuntgteest eetgtengan canaticees tunattnegn
                                                                             240
egeattenen geneantain taatogggaa ntonontonn nescenneat etatentoee
genecetgae Eggnagagat agathantic Unnthigace nacatgitea tetiggatin
                                                                             300
                                                                             360
aananccccc cgcngnecae eggttngung chagccnntc ccaagacete ctgtggaggt
ascetgegte agannestes seentgogsa accepennee angthneagt ngnnneanan
                                                                             420
                                                                             480
gatecegtee aggnttnace attentione agegeceett tingtgeett anagngnage
gtgtccnanc chotcsacat ganacgogco agnocanceg caattnggca caatgtcgnc
                                                                             540
gascccccta gggggantna thcaashccc caggattgtc chchcangaa atccchcane
                                                                             600
                                                                             660
occnecetae connettigg gaengigaee aanteeegga gineeagtee ggeengnete
                                                                             720
coccaceqqt nncontgqgg qggtgaanet engnnteane engncgaqgn ntegnaagga
accegneeto ggnegaanog accontenga agogeoment egtataacce coestencea
                                                                             780
                                                                             B15
nconsengnt agricocccc enggginegg aangg
      <210> 25
      <211> 775
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1)...[775]
       \langle 223 \rangle n = A, T, C or G
       <400> 25
ecqagatqtc tcgctccqtg qccttagctq tgctcqcgct acletclett tctqqcctgg
                                                                              60
aggetateca gegtacteca asgatteagg titacteacg testecagea gagaatggaa
                                                                             120
                                                                             IBO
agtcasattt cotquattgc tatgtgtctg ggtttcatcc atccgacatt gaanttgact
                                                                             240
tactgaagaa tgganagaga attgaaasag tggagcattc agacttytet ttcagcaagg
                                                                             300
actygicitt clatetonis tactacacts aattoacccc cactgassas gatgagtats
                                                                             360
cotgccgtgt gaaccatgtg actttgtcac agcccaaget agttaagtgg gatcgagaca
tgtaagcagn cnncatggaa gtttgaagat gccgcatttg gattggatga attccaaatt ctgcttgctt gcnttttaat antgatatgc ntatacaccc taccetttat gnccccaaat tgtaggggtt acatnantgt tenentngga catgatette etttataant cencentteg
                                                                             420
                                                                             460
                                                                             540
auttgecegt encoungtin ngaatgitte ennaaceaeg gitggeteee ceaggience
                                                                              600
                                                                             660
tottacggaa gggcctgggc chottincaa ggttggggga acchaaaatt tonclintec
                                                                             720
conceeness contetting nucreantit ggaacecite enatteecet tggcctenna
noctionale anaeaacith eeenogingo namennitto actionaca trace
                                                                             775
       <210> 26
       <211> 820
       <212> DNA
       <213> Nomo sapien
       <220>
       <221> misc feature
       <222> (1)...(820)
       \langle 223 \rangle n = A, T, C or G
       <400> 26
                                                                               60
 anattantac agigiaatet titteecagag gigigianag ggaacgggge ciagaggest
 occanagata nottatanca acagtocttt gaccaagage tgetgggeae atticelqea
                                                                              120
 gaaaaggtgg cggtccccat cactuctect ctcucatage cateccagag gggtgagtag
                                                                              180
 ccatcangee tteggtggga gggagteang gaaacaacan accacaqage anacagacca
                                                                              240
ntgatgacca tgggcgggag cgaqcctett ecetanacca gggtggcana nganagcnta
netgagggt cacactataa acgttaacqa cenagatnan caectqette aagtgcaecc
                                                                              300
                                                                              360
 Etectacety achaecagns accommand, gengeetggg gaeagenetg ggancageta
                                                                              420
 aconageact cacoligode edeatggddg thegentere tggteelgne aagggaaget
                                                                              480
 coctottogs sttncooggs naccaaggga nececeteet ccanetgtga aggsasaann
                                                                              540
 gategoalti incentices geomitecen tetteettta caegoccest matactemite
                                                                              600
 Lucatetatt atectgaene actitinace communatite cottaatiga tegganacta
                                                                              660
```

```
ganatteeac tanegeethe entenatong naanachawa nacthtetha econggogat
                                                                                  720
 aggineeter ntestectet etttttenet accidenntt etttgeetet eettigates
780tecazeente getggeente dececconn tecttthece
820
        <210> 27
        <231> 818
        <212> DNA
        <213> Homo sapien
       <220>
       <221> misc_feature
        <222> (1)...(B18)
        <223> n - A, T, C or G
       <400> 27
tetgggtgat ggcetettee teetcaggga cetetgactg etctgggcca asgaatetet
                                                                                   60
tgtttcttct ccgagcccca ggcagcggtg attcagccct gcccaacctg attctgatga
                                                                                  120
ctgcggatge tgtgacggae ccaaggggca aatagggtcc cagggtccag ggaggggcge
                                                                                  180
ctgctgagca cttcogcccc tcaccctgcc cagcccctgc catgagctct gggctgggtc
                                                                                  240
teogecteca gggttetget ettecangea ngecancaag tggegetggg ceacactgge
                                                                                  300
ttetteetge ecentecetg getetgante tetgtettee tgteetgtge angeneettg gateteagtt teeetenete anngametet gtttetgann tetteantta metnigant tatnacenan tggmetgine tgtenmæett taatgggeen gaeeggetam teeeteeete
                                                                                  360
                                                                                  420
                                                                                  400
netecettee anttennona acongettoe ententetee centaneeeg conggoane
                                                                                 540
etecttiges etnessing geommassin econtinoth gaggagonno stinctions etantinose enclonent tocategies ennonnegen impeanate nengiosinn
                                                                                 600
                                                                                 660
thretetten ngthteghaa nghtenenth thhunnghen nghthhthen tecetetene
                                                                                 720
connignang thottohene nenganeece nonnennon ngganothon tetnenenge
                                                                                 780
cconnecce nghattaagg ceteenntet eeggeene
                                                                                 818
       <210> 28
       <211> 731
<212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> {1}...[731}
       <223> n = A,T,C or G
       <400> 28
aggaagggeg gagggatatt gtangggatt gagggetagg agnetaangg gggaggtgtg
                                                                                  60
tecesacsty anggigningt tetetitigs angaggetig ngittitann conggigggt
                                                                                 120
gattmaaccc cattgtatgg agmmaaaggm tttmagggst ttttcggctc ttatcagtat
                                                                                 180
ntanatteet ginaalegga aaainainti tennenggaa aaintigete eealeegnaa
                                                                                 240
attrictioning ggtagtgeat httngggggn ingonangtt toolagging etanaatigt
                                                                                 300
actasagnit naagtgggan tucaaatgaa aacctuncac agagnateen taccegactg
                                                                                 360
truntineet tegeceints aetetsenns ageceaatae connuncia stenecons nungegnene tgaaannune tegnggeinn gancateans gggtitesea teaaaasenn
                                                                                 420
                                                                                 480
egittenest neaggeactt ingesteate caaceneing eccienness titingesyte
                                                                                 540
nggtteneet acgetnning encetnnnin ganatitine eegeeinggg naanceteet
                                                                                 6ND
gnaatgggta gggnettate ttttnacenn gnggtntact aatennetne aegentnett
                                                                                 660
tetenacece ecceptitit caateceane ggcnaatggg gteteceenn oganggggg
                                                                                 720
пплоссапло с
                                                                                 731
       <210> 29
       <211> 822
       <212> DNA
       <213> Homo sapien
       <220>
```

```
<221> misc_feature
       <222> (1)...(822)
       <223> n = A, T, C or G
       <400> 29
                                                                                  60
actagtocag tgtggtggaa ttocattgtg ttggggmono ttotatgant antnttagat
                                                                                120
egeteanace teacancete echaenange etataangaa nannaataga netgtmennt
athithtache teatannect ennhaceeae teectettaa ceentactgt geetatagen
                                                                                180
                                                                                240
thretantet ntgeegeeth enanceacen gtgggeenae enenngmatt etenatetee
                                                                                300
tenecatete gectamanta agtacatace elalacetac nucuatgeta annetaanen
                                                                                360
tocatmantt annntameta ceaetgaent ngaetttene atnaneteet sattigaate
tactcttact occaengeet annuattage anenteceee nacuatutet caaccaaate
                                                                                 420
                                                                                480
ntcaaceacc tetetancin ticnecasco ntinectoon etocconnec asceccete
cceastacco nocacetgae noctaeccon caccateneg geaagechen geneatttan ecectgeat cacnatngga naasaaasae consactete tanenennat etecetaana
                                                                                540
                                                                                 600
                                                                                 660
astrotectn neatttactn reantrocat caancecacn tgaascnnaa cocctgtttt
                                                                                720
tanatecett etttegaaaa cenaceettt annocceaae etttngggee ecceenetne
                                                                                7B0
cenaatgaag gneneceaat enangaaacg neentgaaaa anenaggena anannnteeg
                                                                                822
canatoctat contantin ggggncoctt neconggges co
       <210> 30
       <211> 787
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1).T.(767)
       <22.3> \pi = A, T, C \text{ or } G
       <400> 30
cgqccgcctg ctctggcaca tgcctcctga atggcatcaa aagtgatgga ctgcccattg
                                                                                 60
ctagagaaga cottototo tactgtoatt atggagoodt goagactgag ggotocoott
                                                                                120
gtotgoagga tttgatgtot gaagtogtgg agtgtggott ggagotooto atotacatna gotggaagco otggagggoo tototogooa gootooocot tototooacg ctotooangg
                                                                                180
                                                                                240
                                                                                300
acaccagggg etccaggeag cocattatte ccagnangae atggtgttte tecaegegga
cccatqqqqc etqnaagqcc agggteteet ttqacaccat eteteceqte etqectqqca
                                                                                36D
ggeogtggga tocactantt ctaneacogn cgccaccncg gtgggagetc cagettitgt tecenttaat gaaggttaat tgenegettg gegtaateat nggteanaac tnttteetgt
                                                                                420
                                                                                460
                                                                                540
gtqaaattgt tinicccete nenatteene nenacataen aacceggaan cataaagtgt
taaagcotgg gggtngcotn nngaatnaac tnaactcaat taattgcgtt ggctcatggc
                                                                                 600
cogettteen ttenegaaaa etgtenteee elgenttmut gaateggeea eeeccongge
                                                                                 660
                                                                                720
adaagoggit igentitting gaggiteett ucmutteece eetenetaan eeetinegeek
                                                                                780
coglegithe againgegg geangggnat nanelective meagggging againmightat
                                                                                787
CCCCAAA
       <210> 31
       <211> 799
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> {1}...(799)
       <223> n = A, T, C \text{ or } G
       <400> 31
tttttttt ttttttggc gatgctactg tttmmttgcm ggmggtgggg gtgtgtgtac
                                                                                  60
catgtaccag ggctattaga agcaagaagg aaggagggag ggcagagcgc cctgctgagc
                                                                                120
aacaaaggac Loctycagec ttetetgtut stetettggu geaggeacat ggggaggeet eeeguagggt eggggeeeee agteuagggg tegggageact acanguegtt ggagtgggtg
                                                                                180
                                                                                240
                                                                                300
qtqqctqqin chaatggcct uncavanate cetacgatte ttqacacety gattteauca
```

```
ggggacette tgttetecca nggnaactte ntnnateten asagaaczea actgtttett
                                                                        36U
engeantiet ggetgtteat ggaaageaca ggtgteenat tinggetggg actiggtaea
                                                                        420
tatggttccg goodacotot occutonaan aagtaattoa cooccocon contetuttg
                                                                        480
cotgggccct taantaccca caceggaact canttantta ttcatcting gntgggcttg
                                                                        54 D
ntnatchecon cotgaangeg coaagttgaa aggecaegee gtnecenete eccatagnan
                                                                        600
ntittnnent canctaatge ecceeengge aacnateeaa teeceeecen tgogggeeee
                                                                        660
ageceangge eccegneteg ggnnneengn enegnantee ecaggntete ecantengne
                                                                        720
conningence decidence gazennagg ningageene egennnnnn nigtinenae
                                                                        780
etegeneece cennegning
                                                                        799
      <210> 32
      <211> 789
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)... (789)
      <223> n = A,T,C or G
      <400> 32
60
ttttnccnag ggcaggttta ttgacaacct cncgggacac aancaggctg gggacaggac
                                                                        12D
ggcaacagge teeggeggeg geggeggegg eectaestge ggtaccaaat ntgcageete
                                                                        180
egeteeeget tgatmiteet etgeagetge aggatgeent aaaacaggge eteggeentm
                                                                        24 D
ggtgggcacc ctgggatttn eatttccacg ggcaceatgc ggtcgcancc cctcaccacc
                                                                        300
nattaggaat agtggtntta cocncenceg ttggcncaet eccentggaa accaettnte
                                                                        360
gaggateegg catalogstat taazaattga aaacnatggg gacatattt tagttantnt
                                                                        420
ncongecaca atcatnacte agaetgyene gggetggeee caaaaaanen ceccaaaace
ggnecatgte ttmmeggggt tgmtgmatm thealeacet ecegggenea neaggneace
                                                                       480
                                                                       540
ccasaagtte ttqnggcccn cassasnct ccggggggnc ccagtttcaa cassgtcate
                                                                       600
ecentlying eccasatest ecocognit neighboring gradecase coteinnest
                                                                       660
tggnnggcee gntggntccc cottogggos cooggtgggs connetctae ngaeaachde
                                                                       720
ntectnnnea ceateceee nngnnaegne tancaangna tecettitt tanaaacggg
                                                                       780
ccccccncq
                                                                       789
      <210> 33
      <211> 793
      <212> DNA
      <213> Nome sapien
      <220>
      <221> misc feature
      <222> (1) ... (793)
      <223> n = A, T, C or G
      <400> 33
gacagaacat gttggatggt ggagcacctt tctatacgac ttacaggaca gcagatgggg
                                                                        60
120
qectesagtc tgatgeactt cccaatcaga tgagcatgga tgattggcca qaaatqaana
                                                                       160
agaagttigc agaigtaitt gcaaagaaga cgaaggcaga giggtgicaa aictitgacg
                                                                       240
gracagatge etgigtgact ceggitetga ettitgagga ggitgiteat catgateaca
                                                                       300
acaangaacg gggctcgttt atcaccantg aggagcagga cgtgagcccc cgccctgcac
                                                                       360
ctctqctqtt aaacacccca qccatccctt ctttcaaaag ggatccacta cttctagagc
                                                                       420
ggnegecace geggtggage tocagetttt gtteeettta gtgagggtta attgegeget
tggegtaate atggteatan etgttteetg tgtgaaattg ttateegete acaatteeae
                                                                       480
                                                                       540
acaacatacg ancoggaage atnaaatttt aaageetggn ggtngeetaa tgantgaact
                                                                       600
nacteacatt sattigettt gegeteactg seegettiee agteeggaas acctgleett
                                                                       660
gecagetgee nttaatgaat enggecaeee eeeggggaaa aggengtttg ettnitgggg
                                                                       720
egenettees getttetege tteetgaant eetteesees getetttegg ettgeggena
                                                                       380
acggtatona cot
                                                                       793
```

```
<210> 34
              <211> 756
              <212> DNA
              <213> Romo sapien
              <220>
              <221> misc_feature
              <222> (1) ... (756)
              <223> n = A, T, C or G
googogacog goatgtacga goaactcaag ggogagtgga accgtaaaag coccaatott ancaagtgog gggaanagot gggtogacto aagotagtto ttotggagot caacttottg
                                                                                                                                                                            60
                                                                                                                                                                          120
ccaaccacag ggaccaaget gaccaaacag cagctaatte tggcccgtga catactggag ategggges aatggageat ectaegeaan gacateceet eettegageg etaeatggee
                                                                                                                                                                          180
                                                                                                                                                                          240
cageteasat getactactt tgattacaan gageagetee eegagteage etatatgeae
                                                                                                                                                                          300
                                                                                                                                                                          360
casciciting section contracts of sections are sections of the section of the sect
                                                                                                                                                                          420
acggantigg anoggetice tocceaanga catacanace aatgictaca tenaceacea
gtgtcctgga gczatactga tgganggcag ctaccncaaa gtnttcctgg ccnagggtaa
                                                                                                                                                                          4BO
cateceeege egagagetae acettettea ttgacateet getegacaet atcagggatg
                                                                                                                                                                         540
                                                                                                                                                                          600
athenetayt netagaateg geocgecate geggtggane etceaacett tegttneest ttaetgaggg tinaitgeeg eesttggegt tatealggie acheengtth cetgtgttga
                                                                                                                                                                          660
                                                                                                                                                                         720
                                                                                                                                                                         756
Battottaac occoracast tocacgoona cattog
               <210> 35
               <211> 834
               <212> DNA
               <213> Homo sapien
              <220>
              <221> misc feature
              <222> (1)...(834)
               <223> n = A, T, C or G
               <400> 35
 gęggatetet anatenacet gnatgeatgg tigteggtgt ggtegetgte gatgaanatg
                                                                                                                                                                            60
 ascaggetet tyceettqua getetegget getgtnitta agtigeteag tetgeegtea
                                                                                                                                                                          120
taqtoaqaca enctettqqq caaaaaacan caqqatntqa gtettqattt cacetecaat aatettenqq getgtelqee eggtqaacte qatqaenanq qqeaqetqqt tqtqtntqat aaanleeane angtteteet tqqtqaeele eeetteaaaq ttqtteeqqe etteateaaa
                                                                                                                                                                          180
                                                                                                                                                                          240
                                                                                                                                                                          300
 cttctnnsan angannance cancettgte gagetggnat ligganaaca egteactgtt
                                                                                                                                                                          360
                                                                                                                                                                          420
qqaaactgat cccssatggt stgtcatcca tcgcctctgc tgcctgcass saacttgctt
 ggencaaate egactoeeen teettgasag aageenatea eaccecete cotggactee
                                                                                                                                                                          480
nncaangact cincegeine ecenteenng cagggiiggi ggeanneegg geeenigege tietteagee agiteaenat niteateage ecetetgeea geigiintat teetiggggg
                                                                                                                                                                          540
                                                                                                                                                                          600
ggaancegte tetecettee tgaannaact ttgaccgtng gaatageege gentencent
                                                                                                                                                                          660
 achthology coggyttoaa antocotoon tignonnion cologygeea ticiggatti
                                                                                                                                                                          720
                                                                                                                                                                          780
 nechaettt tteetteece eneceenegg ngtttggntt ttteatnggg ecceaactet
                                                                                                                                                                          B34
 getnttggcc antecectgg gggcntntan eneceetht ggtecentng ggcc
               <210> 36
               <211> 814
                <212> DNA
               <213> Homo sapien
                <220>
               <221> misc_reature
                <222> (1)...(814)
                \langle 223 \rangle n = A, T, C or G
               <400> 36
```

```
eggnegettt congeegege eccyttteca tgacnaagge teeetteang teaastaenn
                                                                                   60
  cotagnasac attaatyggt tyctotacta atacateata enaaceagta agcotyccoa
                                                                                  120
 naacgccaac toaggccatt cotaccaaag gaagaaaggc tggtototoc acccccigta ggaaaggcot gcottgtaag acaccacaat neggotgaat otnaagtott gtgttttact
                                                                                  180
                                                                                  240
 antguanama maamatamac managgittt gtictcatog ctoccocce cagnetggca ctammacane ecagogetem ettetgettp gammamatatt ettigetett ttggmentem
                                                                                  300
                                                                                  360
 genttestag taleactore annthicese chaquegge necettore carnitique
                                                                                  420
 antganctus eaggeoties nottagtete cassagtete ngcccaraag accggccare
                                                                                  480
 aggggangte nttineagtg gatelgeeaa anantaceen tateatennt gaataaaaag geeenlgaac ganatgette cancaneett taagaeeest aateetngaa eeatggtgee
                                                                                  540
                                                                                  600
 cttocggtot gatochaang gamtgttoot gggtecoant coctectitg tinottacgt tgintiggec contgoingn atheocoman tganatooco ngaagcacco incocciggo
                                                                                  660
                                                                                  720
 attigantit entaaattet etgeeetaen netgaaagea enatteeetn ggeneenaan
                                                                                  780
 ggngaactca agasggtetn ngaaaaacca encn
                                                                                  814
        <210> 37
<211> 760
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
        <222> (1)...(760)
        <223> n = A, T, C or G
        <400> 37
. gostgotgot obicolossa ptiqtiotiq tegecakase asceaccata ggtaaagegg
                                                                                  60
 geneautilt egetssanng gtigtagtae cagegeggga igeteteet geagagteet
                                                                                 120
 gtqtctggca ggtccacqca algocolltg tcactgggga aatggatgeg ctgqagctcg
                                                                                 180
 tenmanecae tegigiatit thesemore gesteeleg sagenteegs geagitggg
                                                                                 240
 gtqtcqtcac actccactaa actqtcgatm cancaqccca ttqctgcaqc ggaactqqqt
                                                                                 300
 gggctgacag gtgccagaac acactggatm ggcctttcca tggaagggcc tgggggaaat
                                                                                 360
 enecthance casactgeet etesasggee seettgeses eccegacagg ctagasatge
                                                                                 420
 actettette ecaaaggtag tigitetigt tgeccaagea neetecanea aaceaaane
                                                                                 480
 ttgcaaaatc tgctccgtgg gggtcatnnn taccanggtt ggggaaanaa acccggcngn
                                                                                 540
 ganconcett gtttgaatge naaggnaata atecteetgt ettgettggg tggaanagez
                                                                                 600
caattgaact gttaachtty ggccyngtte enethyggty gtetgaaact aateaccyte actggaaaaa ggtangtyce tteettgaat teecaaantt eccetnyntt tygytmitt
                                                                                 660
                                                                                 720
 ctectetoce ctammater introcece centangger
                                                                                 760
        <210> 38
        <211> 724
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc feature
        <222> (1)...(724)
        <223> n - A, T, C or G
        <400> 3B
tttttttttt tttttttt ttttttttt tttttaaasa ccccctccat tgaatgaaaa
                                                                                  60
cttccnaaat tgtccaaccc cctcnnccaa atnnccattt ccgggggggg gftccaaacc
                                                                                 120
casattaatt tiggantita aattaaatni toatingggg aanaanccaa aiginaagaa
                                                                                 180
aatttaaccc attatnaact taaatnoctn gaaaccontg gnttocaaaa atttttaacc
                                                                                 240
cttaaatccc teegaaattg ntaanggasa accaaatten eetaaggetn titgaaggtt
                                                                                 300
ngatttaaac cocctinant intitinacc congectnaa statituget tooggigitt
                                                                                 360
tectnitian eninggiaes tecegniaet gaannoeest sancesatta aucegnutti
                                                                                 120
tittgaatt ggaaatteen ngggaattna ceggggttit tecentitgg gegeealnee
                                                                                 480
econettteg gogtttgggn ntaggttgaa tttttnnang neceassaa neceesaas
                                                                                 540
azaazactcc caagnnitaa tingaainto occottocca ggccttingg gaaaggnggg
                                                                                 600
tttntygggg cengggantt collecten ttnetnete ecceenggt aaanggttat
                                                                                 660
```

```
720
ngnnttiggt tittgggdec citnanggac citceggain gaaattaaat cecegggneg
                                                                            724
      <210> 39
      <211> 751
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(751)
      <223> n = A_1T_1C or G
      <400> 39
tittittitt tittictitg otoacattta attilitalit igaintitti taatgoigea
                                                                             60
coococade thtallinat tigtitetti totticotti tattigtitg cigcigcigt
                                                                            120
tratttatt tttactgass grgsgagggs acttrtgtgg cettrttec trittetgta
                                                                            180
ggccqcctta agctttctsa atttggaacs tctssqcasq ctqaanqqaa aaqgggqttt
                                                                            240
                                                                            300
cgceeaatce ctcggqqgaa nggaaaqqtt gctttqttaa tcatgcccta tqqtggqtqa
                                                                            360
ttaactgctt gtacaattac ntttcacttt taattaattg tgctnaangc tttaattama
cttgggggtt ccctcccan accaacccon ctgacaaaaa gtgccngccc tcaaatnatg
                                                                            420
teceggennt entigabaca caengengaa ngiteteatt nicecenene cagginaaaa
                                                                            4BO
tgaagggtta ccatnittaa coccaccico acniggenno geoigaatee ichaaaanen
                                                                            540
ccctcaanch aattnotning occcggtone gentiningtee eneceggget eegggaantn
                                                                            600
cacceconga annonntone naacnaaatt eegasaatat teecontene teaatteece
                                                                            660
conagacint octonoman encaattite titinnicae gaacnegnoe conagaatgo
                                                                            720
                                                                            751
nonnemente enetogicon maatemeean e
       <210> 40
       <211> 753
       <212> DNA
       <213> Homo sepien
       <220>
       <221> misc_feature
       <222> (1)...(753)
       \langle 223 \rangle n = A, T, C or G
       <400> 40
                                                                             60
giggiatiti eigiaagate aggigtieet eestegiagg titagaqqaa seseettat
                                                                            120
agatgaaaac ccccccgaga cagcagcact gcaactgcca agcagccggg glaggaggg
                                                                            180
cyccctatgc acagetgggc cettgagaca gcagggette gatgtcaqqc tegatgtcaa
tygtotygaa goggoggetg tacctgogta ggggcacace gtoagggccc accaggaact
                                                                            240
totoaaagtt coaggoaach togttgogac acaceggaga ccaggigain agettggggt
                                                                            300
                                                                            360
egyteataan egeggtggeg tegtegetgg gagetggeag ggeeteeege aggaaggena
                                                                            420
atanaaggtg egeocoogea conttoonet egeacticic maanaccatg angitigget
charcocace accanneego acticolige oggasticec asatetette gotettggge
                                                                            480
ttetnetgat geectamete qttgeeengn atgeenames neecesamee eeggggteet aaaneaeen eeteelenii icateleggt intinieere ggaeeniggt teeteteaag gganeeeata tetenaeean taeteaeent neeceseent gnmacceame ettetamgm
                                                                            540
                                                                            600
                                                                            660
ttoconcoog neetel.ggem enteaaanan gettmeaema cotgggtetg cetteccooc
                                                                            720
                                                                            753
thecetatet gnacecoren titigicican int
       <210> 41
       <211> 341
       <212> DNA
       <213> Homo sapien
actatateca teacaacaga catgetteat eccatagaet tettgaesta gentesaatg
                                                                             60
                                                                            120
agtgaaccca tecttgattt atatacatat atgtteteag tattttgggn geettteese
                                                                            180
ttetttaaac cttgttcatt atqueectg amaatmogas tttgtgamgs gttaaaamgt
```

```
tatagetigt ttacgtagis agittitgaa gictacatic aatecagaca citagitgag
                                                                                240
 tgttaaactg tgatttttaa aaaatatcat ttgagaatat tctttcagag gtattttcat
                                                                                300
 tittacitit igattaatig tyttitatat attagggtag t
                                                                                341
       <210> 42
       <211> 101
       <212> DNA
       <213> Homo sapien
       <400> 42
acttactgaa tttagttotg tgotottoot talttagtgt tgtatcales stactttgat
                                                                                60
gtttcaaaca ttctaaataa ataattttca gtggcticat a
                                                                               101
       <210> 43
       <21,1> 305
       <212> DNA
       <213> Homo sepien
       <400> 43
acatettigt tacagictae geigigitet taaatcacce ticeticetg giootcacce
                                                                                6D
tecagggtgg teteacactg taattagage tattgaggag tetttacage aaattaagat
                                                                               12D
tragatoret tortaagtet agagttetag agttatottt ragaaagtet aagaaaccca
                                                                               180
cotottyaga ggtcagtaaa gaggacttaa tatttoatat otacaaaatg accacaggat
                                                                               240
tggatacaga acgagagtta tectggataa etcagagetg agtacetgee egggggeege
                                                                               300
tegaa
                                                                               305
       <210> 44
       <211> 852
       <212> DNA
       <213> Humo sepien
       <220>
       <221> misc_feature
       <222> (1) ... (852)
       <223> n = A,T,C or G
       <400> 44
acataaatat cagagaaaag tagtottiga aatatttacg tocaggagtt ottigtitot
                                                                                60
gattattig tgigtgitt ggttigtgit caaagtatig gcagettcag titteattit ctotccatec tegggeatte titeccaaatt tatataccag tettegices tecseseget ccagaattic tettigiag taatatetca tagetegget gagetittes taggleateg tgetgitgit ettettita ccccataget gagecatge cottgatte asgasectge
                                                                               120
                                                                               180
                                                                               240
                                                                               300
agacgocoto agatoggiot toccattita traatcotgg gitotigtoi goglicaaga
                                                                              360
ggatytogog gatyaattoo cataagtgag tooototogg gttglgcttt tiggtytggo
                                                                               420
acttygeagg ggggtettge tecttttea tateaggtga etetgeases ggaaggtgae
                                                                               480
tggtggllgt calggagate tgageeegge aqaaagitit getgteeaac aaatetactg
                                                                              54 D
tactacceta gttggtgtce taleastagt tctnqtcttt ccaggtgtte atgatggaag
                                                                              GOD
geteagtite treaterry acastesest tetefetogs creening teactactee
                                                                              660
actggccqtt ccacttgaga tgctgcaaqt tgctgtagag gagntgcccc gccgtccctg
                                                                              720
ccqcccgqqt gaactcctgc asactcatgc tgcsaaggtg ctcgccgttg atgtcgaact
                                                                              760
entqgaaaqq gatacaattq gcatecaget qgttgqtgtc caggaqgtga tggaqccact
                                                                              840
cccacacctg gt
                                                                              852
      <210> 45
      <211> 234
      <212> DNA
      <213> Homo sapien
      <4D0> 45
acaacagaco ottgotogot aacgacotoa tyotoatoaa gttggacgaa tooglytoog
                                                                               60
agtotgacae cateeggage ateageatty ettegeagty coetacegeg gggaactett
                                                                              120
gootogitte tggotggggt otgotggoga acggozgzat gootaccqtq cigcaqigog
                                                                              180
```

```
tgaacqtoto agtggtgtot gaagaagtot goagtaagot ctatgaccog ctgt
                                                                          234
      <210> 46
      <211> 590
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) . . . (590)
      \langle 223 \rangle n = A,T,U or G
      <400> 46
actititati taaatgitta taaqqcaqat ctatqagaat gataqeeeec etgqtgtqta
                                                                            60
attigatago aatatitigg agattacaga gittiagtaa itaccaatta cacagitaaa
                                                                           120
                                                                           180
aaqaaqataa tatattocaa goanatacaa aatatotaat gaaagatoaa ggcaggaaaa
                                                                           240
tgantataac taattgacaa tggaaaatca attttaatgt gaattgcaca ttateettta
aaagetttea aaanaaanaa tiattgeagt etanttaait caaacagtgt taaatggtat eaggataaan aaetgaaggg canaaagaat taatttteae tteatgtaac neacceanat
                                                                           300
                                                                           360
                                                                           420
ttacantgge ttasatgcan ggaasaagea gtggaagtag ggaagtante aaggtettte
                                                                           4B0
togtototaa totgeottae totttyggty tygotttyat cototggaga cagotgocag
ggeteetgtt atateeacaa teecageage aagatgaagg gatgaaaaag gacacatget
                                                                           540.
                                                                           590
goottoottt gaggagactt catotoactg gooaacactc agtoacatgt
      <210> 47
       <211> 774
       <212> DNA
       <213> Homo sapien
       <220>
      <221> misc_feature
      <222> (1)...(774)
      <223> n = A, T, C or G
acaagggggc ataatgaagg agtggggana gattttaaag aaggaaaaaa aacgaggccc
                                                                            60
tgeacagaat titteetgnac aacggggett caaaataatt ttettgggga ggttcaagac
                                                                           120
getheactge ttgasactta satggatgtg ggacanautt ttetgtaatg accetgaggg
                                                                           160
                                                                           240
cattecagec gggaciciae qaqqaaqqat mascagaaag gggacaaagg ctaatcccaa
escatcaseg sanggaaggt ggogtostec otcocagoot acacagttet coagggetet
                                                                           300
cctcatcct ggaggacgac agl:qqaqqaa caactgacca lqlccccagg ctcctgtgtg
                                                                           360
                                                                           420
etggeteetg gtetteagee cocagetetg gaageneach etetgetgat cetgegtgge
ccacacteet tgaacacaca tecccagget statteetgg sestquetgs accteutatt
                                                                           480
cotacttory agatgeetty etecetyces cetyteasaa teccaeteso ecleumanue
                                                                           540
acggeatggg aageetteet gaettgeetg attacteesg catelluges castecetgs
                                                                           600
                                                                           660
ttccccactc cttagaggca agatagggtg gttaagagta gggct.ggecc ecttggagcc
aggotgotgg cttcaaattn tggctcattt acgagotatg ggacottggg caagtnatct
                                                                           720
                                                                           774
toacticiat gggcmicati tigitciaco igcaaaaigg gggataaiaa tagi
       <210> 4B
       <211> 124
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_fcature
       <222> (1) ... (124)
       <223> n = A, T, C or G
       <400> 48
 canaaattga aatttialaa aaaggcattt tictcttata tocalaaast gatalaattt
                                                                            6D
 tigoaantat annasigigt catasattat naigiteeti saltacagot caacqcaact
                                                                           12D
```

```
tggt
                                                                         124
       <210> 49
       <211> 347
       <212> DWA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(147)
       <223> n = A,T,C or G
       <400> 49
geographica ctattttatt geaggaggtg ggggtgtttt tattattete teaacagett
                                                                         60
tgtggetaca ggtggtgtet gaetgeatna aavantittt taegggtgat tgeasamatt
                                                                        120
ttagggcaco catatoccas quantit
                                                                        147
      <210> 50
       <211> 107
       <212> DNA
       <213> Homo sapien
      <400> 50
acattaeett aataaaagga ctgttggggt tctgctaaaa cacatggctt getatattgc
                                                                         60
atggtttgag gttaggagga gttaggcata tgttttggga gaggggt
                                                                        107
      <210> 51
      <211> 204
      <212> DNA
      <213> Homo sapien
gtoctaqqaa qtctaqqqqa cacacqactc tqqqqtcacq qqqccqacec acttqcacqq
                                                                         60
caddwwadar eddcwaedra atdwceccar ceddadaer rdecroeed deerrcwad
                                                                        120
geettgeaag gtmagaaagg ggamteaggg ettmeaceam agmeetgemme camttggmea
                                                                        180
cctccctttt gggaccagca atgt
                                                                        204
      <210> 52
      <211> 491
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> {1}...{491}
      <223> n = A,T,C or G
      <400> 52
acasagatae cattlatett atsacasaes titgatagtt tisaeggite giattgigka
                                                                         60
gggtatilitc caasagacta aagagataac tcaggtaaaa agttsgasat, gtataaaaca
                                                                        120
ccatcagaca ggittitasa aascaacata tiacaaasti agacasicai ccitasaaaa
                                                                       180
seascticit gistcastit cittigitca saatgactga citaaniati titeastati
                                                                        240
t.canaeacac ttoctoaasa attttoaana tggtagottt canatgtnoc ctcagtocca
                                                                        300
atgitgetca gataaataaa totogigaga actiaccaco caccacaago titoiggggo
                                                                       360
stgcaacagt gtcttttctt tnctttttct ttttttttt ttacaggcac agaaactcat
                                                                       420
caattttatt tggataacaa agggtotoca aattatattg aasaacaaat ccaagttaat
                                                                       480
atcactcttg t
                                                                       491
      <210> 53
      <211> 484
      <212> DNA
      <213> Komo sapien
```

```
<220>
      <221> misc_feature
      <222> (1.) ... (484)
      <223> n - A, T, C or G
                                                                         60
acataattta qcaggqctaa ttaccataag atgctattta ttaanaggtn tatgatctga
gtattaacag tigcigaagt tiggiattit taigcagcat titcittitg cittgataac
                                                                        120
actacagaac cettaaggac actgaaaatt agtaagtaaa gttcagaaac attagetget
                                                                        180
                                                                        240
caatcaaatc totacataac actatagtaa ttaaaacgtt aaaaaaaagt gttgaaatct
                                                                        300
gcactagtat anacogotoc tgtcaggata anactgottt ggaacagaaa gggaaaaanc
agetttgant ttettigtge tgatangagg aaaggetgaa ttacettgtt geeteteeet
                                                                        360
aztgattago aggionogia aetnocessa catattocas etesacsett etitteeneg
                                                                        420
                                                                        480
tancttgant ctgtgtattc caggancagg cggatggaat pggccageco neggatette
                                                                        484
cant
      <210> 54
      <211> 151
      <212> DNA
      <213> Homo sapien
      <400> 54
                                                                         60
acteaacctc gtgcttgtgs actccataca gassacggtg ccatccctgs acacggctgg
                                                                        120
ccartgggta tactgctgac aaccgcaaca acaaaaacac aaatccttgg cactggctag
                                                                        151
totatgtoot otcaagtgoo titttgtiig t
      <210> 55
      <211> 91
      <212> DNA
      <213> Homo sapien
                                                                         60
acctigating totacognity ofthe congressing concerning tracessage gracestite
                                                                         91
googtenagt ggatacloga goosaaging t
      <210> 56
      <211> 133
      <212> DNA
      <213> Homo sapien
                                                                         бΩ
agaggatata etacaastat gtoattttat gtaagggact tgagtatact
tggattittg gtatctgtgg gttgggggga cggtccagga accaataccc catggatacc
                                                                        120
                                                                        133
aagggacaac tgt
      <210> 57
      <211> 347
      <21%> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(147)
      <223> n - A, T, C or G
      <400> 57
actotggaga acotgagoog otgotoogoo totgggatga ggtgatgcan gongtggogo
                                                                         60
                                                                        120
gactgggage tgagecette cetttgegee tgeetcagag gattgttgee gachtgcana
                                                                        147
tetcantggg ctggatncat gcagggt
```

<210> 58

```
<211> 198
        <212> DNA
        <213> Nomo sapien
        <220>
        <221> misc feature
        <222> (1)...(198)
        <223> n = A, T, C or G
        <400> 58
 acagggatat apotttnaag ttattgtnat totaaaatac attgaatttt ctotatactc
                                                                              60
 tgattecata celttatoot ttaaaaaaga tgtaaatott aatitttatg coatotatta
                                                                             120
 atttaccast genttacctt gtamatgaga antcatnata gczetgaatt ttametantt
                                                                             180
 ttgacttcta agittggt
                                                                             198
        <210> 59
        <211> 330
        <212> DNA
        <213> Homo mapien
        <400> 59
 acaacaaatg ggttgtgagg aagtottatc agcaaaactg gtgatggcta ctgaaaagat
                                                                              60
 coattgamma ttatcattam tgattttmam tgacaagttm tcaammactc actcamttt
                                                                             120
 caccigingt agettictea aatgggagtt aactclagag casatatagt atcttctgaa
                                                                             1BO
 tacagtosat asatgaceaa gocagggcot acaggtggtt tocagacttt coagaccoag
                                                                            240
 cagaaggeat ctatitiate acatggatet cogtetgige teaaaatace taaigatati
                                                                            300
. tttcgtcttt attggacttc tttgaagagt
                                                                            330
       <210> 60
       <211> 175
       <212> DNA
       <213> Komo sapien
 acceptagety contobacat tectgacage tectteacea acatetaget chacttegge
                                                                             60
 gtcgtggget cetteetett cateeteate cagetggtge tgeteatega etttgegeae
                                                                            120
 tectgyaace ageggtgget gggcaaggee gaggagtgeg attecegtge etggt
                                                                            175
       <210> 61
       <211> 154
       <212> DNA
       <213> Homo sapion
       <400> 61
acconnectit tecteetgig agnagiology acticleset getacatgat gagggigagi ggtigitget ettesacagi accomment ticeggatet gelgageegg acagnagige
                                                                             60
                                                                            150
 tgqactgcac agccccggqq ctccecattq ctqt
                                                                            154
       <210> 62
       <211> 30
       <212> DNA
       <213> Homo sapien
       <400> 62
cyclogaged ctatagtgag tegtattaga
                                                                             30
       <210> 63
       <211> 89
       <212> DNA
       <213> Homo sapien
       <400> 63
```

```
scangteatt teageaccet ttgctettem anactgacem tetttatat ttmatgette
                                                                            60
                                                                           89
ctgtetgast assaatggtt atgtcaagt
      <210> 64
      <211> 97
      <212> DNA
      <213> Homo sepien
      <400> 64
accognageas ctgaqtcqqq acqctqaatc 1.qaatccacc aataaataaa eqttotqoaq
                                                                           6D
                                                                           97
aatcagtgca tecaggattg gteettggat etggget
      <210> 65
      <211> 377
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(377)
      <223> n = A,T,C or G
      <400> 65
                                                                           60
acascaenaa ntocoffett taggocactg atggaaacct ggaacccoof titgafggca
ocatoposto etaggeetty acacagegge tggggtttgg getnteccaa acegeacace ecageetgg letacecaca nttetggeta tgggetgtet etgecactga acateagggt
                                                                          120
                                                                          180
Engqtoataa matgaaatoo caanqqqqao aqaqqtoaqt aqaqqaaqot caatgaqaaa
                                                                          240
                                                                          300
ggtgctgttt gctcagccag aaaacagcig cetggcatte geogctgaac tatgaacccg
                                                                          360
tgggggtgas ntacconna gaggaalcat gootgggga tqcaanggtg coucaggag
                                                                          377
gggcgggagg agcatgt
      <210> 66
      <211> 305
      <212> DNA
      <213> Homo sapien
acquetttee eteagaatte agggaagaga etgtegeetg cetteeteeg tigitgegtg
                                                                           6D
                                                                          120
agaacceqtg tgeceettee eaccatatee accetegete catetttgaa eteaaacaeg
                                                                          180
aggaactase tquaccotqq tectetecue agtecocaqt teacceteca teceteacet
                                                                          240
tectecante taagggatat caacactgee cageacaggg geeetgaatt tatgtggttt
ttatatettt Liteateega kigcacttiat otcatttitt aetaaagtot gaagaattac
                                                                          300
                                                                          305
tgttt
      <210> 67
      <211> 3B5
      <212> DNA
      <213> Homo sapien
      <4DD> 67
actacacaca etecaettge eettgtgaga caetttgtee eageaettta ggaatgetga
                                                                           60
                                                                          120
gqtcqqacca gccacatctc atgtgcaaga ttgcccaqca gacatcaggt ctgagagttc
                                                                          180
cocttttaaa aaaggggact tgcttaaaaa agaagtotag ccacgattgt gtagagcagc
tgtgctgtgc tggagattca cttttgagag agttctcctc tgagacctga tctttagagg
                                                                          240
                                                                          300
ctgggcagtc ttgcacatga gatggggctg gtctgatetc agcactcctt agtctgcttg
cototoccag ggococages tygocacaes tysttacagg geastetcag atgoccatas
                                                                          360
                                                                          3B5
catagittet qigetagigg accept
      <210> 68
      <211> 73
      <212> DNA
      <213> Homo sapien
```

```
<400> 68
 actteaccay atatattill accordate eggelettot tigineaasa tessatasa
                                                                               60
gtttitttaa igg
                                                                               73
       <210> 69
       <211> 536
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(536)
       \langle 223 \rangle n = A,T,C or G
       <400> 69
actagiccag tgiggiggaa ticcatigig tigggggete teaccetect electgeage
                                                                              60
tocagettig tgetetgeet etgaggagae catggeccag catctgagta coetgetget
                                                                             120
cetyctggee accetagetg tggecetyge etggageere aaggaggagg ataggataat
                                                                             180
cocgagage atotataace cagacotcae tgatgagtgg gtacagegtg cocttoactt cacatcage gagtataaca aggcosccae agatgactae tacagacyte cyctycggyt
                                                                             240
                                                                             300
actaagagee aggcaacaga eegitggggg ggtgaattae ttettegaeg tagaggtggg
                                                                             360
cogaaccata tgtaccaagt cocagoocaa ottggacaco tgtgccttuc atgaacagoo
                                                                             420
agaactgcag aagaaacagt totgetettt egagatetan gaagtteent quggagaaca
                                                                             480
geangteest grotgeante caggigiess genelecten genteletty conge
                                                                             536
       <210> 70
       <211> 477
       <212> DNA
       <213> Homo sapien
      <40D> 70
atgaccecta acaggggese teteageset estaatgace teeggestag ceatgtgatt teastteeac tesataacge testeataet aggestasta accaacaeac taaccatata
                                                                              60
                                                                             120
ccaatgatgg cgcgatgtaa cacgagaaag cacateccaa ggccaccaca caccacctgt
                                                                             180
ccaaaaaggc cttcgatacg ggataatect atttattace tcagaagttt ttttettege
                                                                             240
agggattttt ctgagocttt taccactoca geotageocc taccccccaa ctaggaggge
                                                                             300
actggccccc aacaggcate acceopetaa atcccctaga agteccacte etaaacacat
                                                                             360
cogtattact ogcatoagua gtatoastos cotgagotos costagtota stagassacs
                                                                             420
accommence auttattess agracigett attacaattt Lacinggtet etatttt
                                                                             477
       <210> 71
       <211> 533
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> {1}...(533)
       \langle 223 \rangle n = A,T,C or G
       <400> 71
agagetatag gtacagtgtg ateteagett tgcasacaes ttttetaeat agatagtaet
                                                                              60
aggiattaat agataigiaa agamagamat cacaccatta ataatggtaa gattagitta
                                                                             120
tgigatttta giggtaittt tggcaccett atatatgttt tecaaacttt cagcagtgat
                                                                             180
attattteca taacttaaaa agtgegtttg maaaagiawa tetecageaa gesteteatt
                                                                             240
taaataaagg tttgtcatct tlaaaaatac agcaatatgt gactttttaa aaaagctgle
                                                                             300
asatuggigi gaccotacia ataatlatta gabalacatt taaauacato gagiacotos
                                                                             360
agteagtitg cettgesaas telcasetel sactettaga gaastytees lasasgeatg
                                                                             120
ottogtaatt tiggaquang aggitocolo otoaattikg tattittaas aagiacatgg
                                                                             480
taakaaaaaa amitcacaac agtatataag gotgtaaaat qaagaattot goo
                                                                            533
```

<210> 72

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<211> 511
             <212> DNA
             <213> Homo sapien
             <220>
             <221> misc_feature
             <222> (1)...(511)
             <223> n = 3, T, C or G
             <400> 72
                                                                                                                                                             60
tattacggaa aaacacacca cataattcaa ctancaaaga unactgotto agggcqtQta
                                                                                                                                                           120
assignment to be a second and a second second and a second second and a second second and a second s
eagongeagg atgtotacac tatancaggo gotatttggg ttggotogag gagotgtgga
                                                                                                                                                           180
aascetggen sqattqqtgc tgganatcgc cgtgqctatt cctcattgtt ettacanagt
                                                                                                                                                           240
                                                                                                                                                           300
gaggttetet gtgtgeeese tggtttgaas accgttetne aatsatgats gestagtaca
cacatgagaa ctgaaatggc ccaaacccag aaagaaagcc caactagatc ctcagaanac
                                                                                                                                                           360
                                                                                                                                                           420
gcttctaggg acaataaccg atgaagaaaa gatggcctcc ttgtgccccc gtctgttatg
                                                                                                                                                           480
atttetete attgeagena maasceegtt ettetaagea aacmeaggtg atgatggena
                                                                                                                                                           511
aaatacaccc cotottgaag naccnggagg a
             <210> 73
             <211> 499
             <212> DNA
             <213> Homo sapien
             <220>
             <221> misc_feature
             <222> {1)...(499}
             \langle 223 \rangle n = A, T, C or G
             <400> 73
                                                                                                                                                             60
caqtqccaqc actgqtqcca qtaccaqtac caataacaqt qccaqtqcca qtqccaqcac
cagtogtoge theagtgets stocked acceptant cteacattts sections
                                                                                                                                                           120
tggccttggt ggagctggtg ccagcaccag tggcagctct ggtgcctgtg gtttctccta caagtgagat tttagatatt gttaatcctg ccagtctttc tcttcaagcc agggtgcatc
                                                                                                                                                           180
                                                                                                                                                           240
                                                                                                                                                           300
 ctcaqaaacc tactcaacac agcactetag geagceacta teaatcaatt gaagttgaca
360
antitagagg goodgittae accognigat cagnotogae igigoctici antigodago
                                                                                                                                                           420
                                                                                                                                                           480
catchetet traccocto commiscot teetracco ragazagigo cacteceset
                                                                                                                                                           499
gteettteet aantaaaat
             <210> 74
             <211> 537
              <212> DNA
              <213> Homo sapien
             <220>
             <221> misc feature
              <222> (1)...(537)
              \langle 223 \rangle n = A, T, C or G
              <400> 74
 tttcatagga gaacacactg aggagatact tgaagaattt ggattcagcc gcgaagagat
                                                                                                                                                             60
ttatcagett auctengata aaateattga aagtaataag qtaaaageta gtetetaaet tecaggeeca eggeteaagt gaatttgaat actgeattta eagtgtagag taacacataa cattgtatge atggawacat ggaggameag tattacagtg tectaceaet etaateaaga aaagaattae aqaetetgat telacagtga tgattgaatt etaaaaatgg taateattag
                                                                                                                                                           120 .
                                                                                                                                                           180
                                                                                                                                                           240
                                                                                                                                                           300
 ggcttttgat ttataanaci liggqtactt atactaeett atggtagtta testgcctte
                                                                                                                                                           360
                                                                                                                                                           420
 cagettqcci qelatating trgateltes muttertgae tratatittg aatgggttet
                                                                                                                                                           480
 actgammen quatquieta tictiquaga catogalata cattlalita cactotigat
 totacaatgt agasaatgaa ggsaetgccc casattigtat ggtgstaaaa gtcccgt
                                                                                                                                                           537
```

```
<210> 75
       <211> 467
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(467)
       \langle 223 \rangle n = A, T, C or G
       <400> 75
casanaceat, tgttcseaag atgcaaatga tacactactg ctgcagctca caaacacctc
                                                                             ፍበ
 tgcatettac acgtacetce tectgetect caagtagtgt ggtetatttt gecateatea
                                                                            120
 cctgctqtct qcttagaaga acggctttct qctgcaangg agagaaatca taacagacgg
                                                                            180
tggcacaagg aggccatcii ticcicatcg gitatigico ciagaagogi ciictgagga
                                                                            240
tctagttqgg ctttctttct qggtttqqgc catttcantt ctcatgtqtg tactattcta
                                                                            300
toattatigi ataacggitt toasacongi gggcacnoag agsacotoac toigisataa caaigaggaa tageoseggi gaiotocago accasatoic tocaigitni tocagagoto
                                                                            360
                                                                            420
ctccagecaa cccaaatago cgctgctatn gtgtagaaca tccctgn
                                                                            467
       <210> 76
       <211> 40D
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(400)
       \langle 223 \rangle n = A, T, C or G
       <400> 76
aagetgacag cattegggee gagatgtete geteegtgge ettagetgtg etegegetae
                                                                            60
totototto tagootagas gotatocago gtactocaaa gattoaggtt tactoacgto
                                                                           120
atccagcaga gaatggaaag toaaatttoo tgaattgota tgtgtotggg tttcatcoat
                                                                           180
cogacattga agitgactta cigaagaatg gagagagaat igaaaaagig gagcuttoag
                                                                           240
actigicati cagoasggao iggiotitoi atoiotigia ciacactgaa ticaccoca
                                                                           300
ctgaaaaaga tgagtatgoo tgoogtgtga accatgtgae tttgtcacag cccaaqatng
                                                                           360
ttnagtggga toganacatg taagcagcan cotgggaggt
                                                                           400
       <210> 77
       <211> 248
       <212> DNA
       <213> Nomo sapien
      <400> 77
ctggagtgcc ttggtgtttc aagcccctgc aggaagcaga atgcaccttc tgaggcacct
                                                                            60
ccagetycce cggcggggga tgcgaggctc ggagcaccct tgcccggctg tgattyctgc
                                                                           120
caggeactgt teateteage tittetgtee ettigeteee ggeaageget tetgetgaaa
                                                                           180
gttcatatet ggageetgat gtettaacga ataaaggtee catgeteeae eegaaaaaaa
                                                                           240
aaaaaaa
                                                                           248
      <210> 7B
      <211> 201
      <212> DNA
      <213> Homo sapiem
      <400> 78
actaqtocaq tqtqqtqqaa ttccattqtq ttqqqcccaa cacaatqqct acctttaaca
                                                                            60
teacocagae congenetge cogtgeeces ogetgetget aacqueagta tgatgettae
                                                                           120
totgotacto ggasectati titatgiaat taatgietgo titotigiti ataaatgoot
                                                                           180
gatttesses sessaasaas e
                                                                           201
```

```
<210> 79
      <211> 552
      <212> DNA
      <213> Homo sapion
      <220>
      <221> misc feature
      <222> (1) .T. (552)
      <223> n = A, T, C or G
      <400> 79
tecttitgit aggittttgs gecsecete geetseet gigicacega effetgaatg
tttaggcagt gctagtaatt teetegtaat gattetgtta ttaettteet attetttalt
                                                                             120
                                                                             180
cototitott otgaagatta atgaagttga saattgaggt ggstasstac assaaggt&g
tgtgatagta taagtatota agtgoagatg aaagtgtgtt atatatatoo attossaatt,
                                                                             240
atgcaagtta qtaattactc agggttaact aaattacttt aatatgctqt tqaacctact
                                                                             300
                                                                             360
ctgttccttg gctagaaaaa attataaaca ggactttgtt agtttgggaa gccaaattga
taatattota tgttotaaaa gttgggotat acataaanta tnaagaaata tggaatttta
                                                                             420
ttcccaggaa tatggggttc atttatgaat antacccggg anagaagttt tgantnaaac
                                                                             480
cngttttggt taatacgtta etatgtcctn aetnaacaag gcntgactta tttccaaaaa
                                                                             540
                                                                             552
se essesses
      <210> 80
      <211> 476
       <212> DNA
       <213> Homo sapien
      <220>
       <221> misc feature
       <222> (1]...(476)
      <223> n - A,T,C or G
                                                                              60
acagggatti gagatgotaa ggooccagag atogtitgat ocaaccotot tattitoaga
ggggaaaatg gggcctagaa gttacagagc atctagctgg tgcgctggca cccctggcct
                                                                             120
cacacagact coogagtage tyggaetaca ggcacacagt cactgaagca ggccctgttt
                                                                             180
genationed tigocacete canottenae attettente tytostytee tiagicacta agottamaet ticocaceca garangeena ettagatuma atettagagi actiticatac lettetangl cetettenae cetenetty agreeteett gaggettym aggamninte
                                                                             24 D
                                                                             300
                                                                             360
Ecttggetil etcaataaaa tetetatees tetealgttt matilggfac gentauaaat
                                                                             420
                                                                             476
griganass transfirt orggittone titassessa assessassa assessa
       <210> 81
       <211> 232
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> {1}...(232)
       <223> n = A,T,C or C
       <400> 81
tittittitg talgeentem engiggngtt attittigetg ceasectigga ggageceagt
                                                                              60
                                                                             120
ttettetgta tetttettet etgagggate tteetggete tgecceteca tteecageet
                                                                             180
etestecces tottgeactt ttgetsgagt ligosggeget tteetggtag ececteagag
                                                                             232
actoactoac coordeatase tectacoget egogecete grassecoge et
       <210> 82
       <211> 383
       <212> DNA
       <213> Homo sapien
```

```
<220>
         <221> misc_feature
         <222> (1) ... (383)
         <223> n - A, T, C or G
        <400> 82
  aggogggage agaagetaaa gecaaageee aagaagagtg geagtgeeag caetggtgee
                                                                                 60
  agtaccagta ccaataacat gccagtgcca gtgccagcac cagtggtggc ttcagtgctg
                                                                                120
 gigecageet gaccgccact etcacattig ggetettege tygectiggt ggagetggtg
                                                                                180
 ccagcaccag tggcagetet ggtgcctgtg gtttetecta caagtgagat tttagatatt gttaateetg ccagtettte tettcaagee agggtgcate etcagaaace tactcaacae
                                                                                240
                                                                                300
 agcactetng geagecacta tesatesatt gasgttgaca etetgeatta astetatttg
                                                                                360
 ccatttcasa aasassasa sas
                                                                                3B3
        <210> 83
        <211> 494
        <212> DNA
        <213> Homo sapien
        <220>
        <ZZ1> misc_feature
        <222> (1)...(494)
        <223> n - A,T,C or G
        <400> 83
. accgaatigg gaccgcigge tiataagega teatgicete cagtattace teaacgagea
                                                                                 60
 gggagatega gtetataege tgaagaaatt tgaceegatg ggacaacaga cetgeteage
                                                                               120
 ccatcetget eggttetee cagatgacaa atactetega cacegaatea ccatcaagaa
                                                                               180
 acgoiteaag gigoicaiga occagoaaco gogocoigio etetqaqqqi cottaaacig
                                                                               240
 atgictitte typesacetyt tacceetegy agactecyta accasactet teggactyty
                                                                               300
 agreetgatg cettitige agreatante litigentee agletetegt ggogatigat tatgettytg tgaggemate atggtggemt caecestnam gggaacmacat tigantittt
                                                                               360
                                                                               420
 tttcncatat tttaaattac naccagaata nitcaqaata aaigaattga aaaacicita
                                                                               480
 4886 68886888
                                                                               494
        <210> 84
        <211> 380
        <212> DNA
        <213> Homo mapien
        <220>
        <221> misc_feature
        <222> (1).7.(380)
        <223> \pi = A, T, C \text{ or } G
        <400> 84
 gotggtagoo tatqqqqtqq qcauggangq qctcutqagq qacqqqacaq lqacttccca
                                                                                60
 aytatectyc qocesetett ctaccqLccc tacctgcaga tetteogogica gattocccag
                                                                               120
 gaggavatig acgiggecet catggageac agenactiget eginggagee éggettetig
                                                                               180
 gracaccoto eliggoreca ggegogeaco toeqtetenn aqtatoenaa otogologoto
                                                                               240
 gtoctocloc tegicatett cetgetegig gecameater igeiggione ligeicatig
                                                                               300
 contrittag tracacatte ggenaagtee agggeaacag enatetetae tgggaaggee
                                                                               360
 agequitheeg ceteateegg
                                                                               3B0
        <210> 85
        <211> 481
        <212> DNA
        <213> Homo sapien
        <220>
        <221> misc_feature
```

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<222> {1},...(481)
      <223> n = A, T, C or G
      <400> 85
qaqttagoto otocacaaco tigatgaggi egictgeagi ggcetciege ticatacege
                                                                         60
inccatogic startgragg titigecacca cotocigcat citiggggcgg ctaatatoca
                                                                        120
                                                                        180
qqaaactctc estcasqtca coqtcnatna ascotqtqqc tqqttctqtc ttccqctcqq
tgtgaaagga totocagaag gagtgotoga tottococac acttttgatg acttattga
                                                                        240
                                                                        300
gtogattotg catgtocago aggaggttgt accagototo tgacagtgag gtoaccagoo
                                                                        360
ctateatgee nttgaacgtg cegaagaaca cegageettg tgtggggggt gnagteteac
                                                                        420
ccagattctg cattaccaga nagcogtggc amaaganatt gacaactcgc ccaggnngam
aaagaacace teetggaagt getngeeget eetegteent tggtggnnge gentneettt
                                                                        480
                                                                        481
      <210> 86
      <211> 472
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(472)
      \langle 223 \rangle n = A,T,C or G
      <400> 86
                                                                         60
aacatottoo tgtataatgo tgtgtaatat ogatoogatn ttgtotgotg agaattoatt
                                                                        120
acttggaaaa gcaacttnaa gcctggacac tggtattaaa attcacaata tgcaacactt
taaacagtgt gtcaatctgc tecettactt tgtcatcacc agtctgggaa taagggtatg
                                                                        160
                                                                        240
ccctattcac acctgttaaa agggcgctaa geatttttga ttcaacatot tttittttga
cacaagteeg aaaaaageaa aagtaaacag tintiaatit gitageeast tesetiteti
                                                                        300
catogogacas accounting thisassage meatigoele statigaget tigggagets
                                                                        360
                                                                        420
stathique gqasqanlag cotttotect loscnagana ceactcettt catattggga
tottamenss agiliatotot ottacegaig ggetgettet geggeaatte to
                                                                        472
      <210> 87
      <211> 413
      <212> DNA
      <213> Homo sapien
     <220>
      <221> misc_feature
      <222> {1)...(413)
      \langle 223 \rangle n = A, T, C or G
      <400> B7
                                                                         60
agaaaccagt atototnawa acaacctoto atacottqlq gaccheattt tgtqtqcqtq
                                                                        120
tgtgtgtgcg cgcatattat atagacaggc acalcutttu tacttttgta aaagcttatg
cetetitiggt atutatatet gtgaaagtit taatgatetg ceataatgte tiggggacet
                                                                        180
ttgtettetg tgtmaatggt actagagasa acacctaint tatgagicaa ictagiingi
                                                                        240
                                                                        300
tttattcque atgauggmas titccageth acseracine caeactetee citgactagg
                                                                        360
ggggacaaag aaaagcanaa cigaacaina gaaacaatin cciggigaga aatincataa
acagaaatta ggtngtatat tgaaananng catcattnaa acgittitt tit
                                                                        413
      <210> 88
      <211> 448
      <212> DNA
      <213> Nomo sepien
      <220>
      <221> misc feature
      <222> (1)...(448)
      <223> n - A, T, C or G
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<400> BB
egcagegggt cotototate tagetecage etetegeetg ecceaetece egcgtecege
                                                                                         60
gtectageen accategoeg geocceteeg egeoccette etectgetee coatectage
                                                                                        120
egtggesetg geogtgages eegeggeegg etceagtees ggeaageege egegeetggt
                                                                                       180
gggaggocca tggaccccgc gtggaagaag aaggtgtgcg gcgtgcactg gactttgccg
teggcnanta caacaaaccc gcaacnactt ttaccnagen egegetgcag gttgtgccgc
                                                                                       240
                                                                                       300
cocaancesa ttgttactng gggtaantea ttottggaag ttgeacotgg gooseacning tttaccegea consgoosat tngeaceatt nococtocat aacegooot tttaceagagg
                                                                                       360
                                                                                       420
gaancantoc tgntcttttc caeatttt
                                                                                       44B
        <210> 89
        <211> 463
        <212> DNA
        <213> Homo sapien
       <220×
        <221> misc feature
        <222> (1|., (463)
       \langle 223 \rangle n - A,T,C or G
       <400> 89
gaattttgtg cactggccac tgtgatggaa ccattgggcc aggatgcttt gagtttatca
                                                                                        60
gtagtgatte tgccaaagtt ggtgttgtaa catgagtatg taaaatgtea aaaaattage agaggtetag gtetgeatat cageagaeag tttgteegtg tatttgtag cettgaagtt eteagtgaea agttnittet gatgegaagt tetnatteea gtgtttagt cetttgeate
                                                                                       120
                                                                                       18D
                                                                                       240
tttnatgttn agaettgeet etninaaatt gettitgint tetgeaggta etaictgigg
                                                                                       300
tttaaceeee tageannect tototyotto gaanattiga etaiotiaca totoeeeein
                                                                                       360
aattototoo coatannaaa accoangooo ttygganaat ttgaaaaang gntoottonn
                                                                                       420
auttennana antteagnto teatacaaca mazenggane ecc
                                                                                       463
       <210> 90
       <211> 400
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1) ... (400)
       <223> \pi = A, T, C \text{ or } G
       <400> 90
agggattgaa ggtetnitnt actgtoggae tqttcaneca ceaactetae aagttqctqt
                                                                                        60
cttocactoa otgeotgiaa gonintiaac coagactgia tottoataaa tagaacaast
                                                                                       120
toticaccay toacatotto taggacottt ttggattoag ttagtataag ctottccact tocttgtia agacticale tggtaaagto ttaagtttig tagaaaggaa tttaattgco
                                                                                       180
                                                                                       240
continua coatginate tectiquest attiquetes acasecceec ineagicet
                                                                                       300
tigigcatco attitaeata tactteetag ggostiggin cacteggila asttoigcas
                                                                                       360
gagicatotg totgcasasg tigogttegt sistotgcoa
                                                                                       400
       <210> 91
       <211> 480
       <212> DNA
       <213> Homo mapien
       <220>
       <221> misc feature
       <222> (1)... (480)
       <223> n = A,T,C or G
       <400> 91
gageteggat 66000teatet tigtetgagg geageacaca taineagige eaiggnaaci
                                                                                        60
```

```
ggtotaccco acatgggage agcatgccgt agntatataa ggtoattcco tgagtoagac
                                                                              120
                                                                              180
afgeetettt gaetaeegtg toccaptoet ogtgattete acaeacetee nneegetett
tgtggaaaaa ctggcacttg nctggaacta gcaagacatc acttacaaat tcacccacqa gacacttgaa aggtgtaaca aagcgactet tgcattgctt tttqtccctc cggcaccagt
                                                                             240
                                                                             300
tytuaatact aaccegetgg tttgeuteem temestitgt gatetytage teliggalaca
                                                                             360
tetectgaca gtactgaaga acttettett ttgttteaaa agcametett ggtgeetgtt
                                                                             420
ngatcaggtt cocatitics agtocgnatg tteacatgge atainttact teccacaaaa
                                                                             460
      <210> 92
      <21.1> 477
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(477)
      \langle 223 \rangle n - A, T, C or G
      <400> 92
atacagcoca nateccaeca equagatgeg ettqttqaet qaqaacetqa tqeggteaet
                                                                              60
                                                                             120
ggteccgctg tageceeage gactetecae etgetggaag eggttgatge tgeacteett
                                                                             180
cocacgcagg cagcageggg geoggteaat gaacteeact egtggettgg ggttgaeggt
taantgcagg aagaggotga coacctogog gtocaccagg atgcccgact gtgcgggacc
                                                                             240
tgcaqcgaaa etcetegatg gtcatgageg ggaagegaat gangeecagg geettgeeca
                                                                             300
                                                                             360
gaacetteeg cetettetet geegteacet geagetgetg cegetnacae teggeetegg
accayeggae amaeggegtt gameageege acctemegga tycccantgt ytegegetee
                                                                             420
aggaacggen ecagegtyte caggteaatg teggtgaane etcegegggt aatggeg
                                                                             477
      <210> 93
      <211> 377
       <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
       <222> {1}...{377}
      \langle 223 \rangle n = A, T, C or G
                                                                              .60
ganeggetgg acettgeete geattgtget getggeagga atacettgge aaguagetee
agtucqued geoccagace getgeegeee quagetaage etguutetgg cetteccete
                                                                             120
egentematy caquaccent agtoggagem etgtgtttag agllaaqagt gaacactgtn tgattttact tgggmattte etetqttata tagettttee caatgetaat ttecsaacaa
                                                                             38D
                                                                             240
cáscoscasa alaucatott tocctottna gliglalesa eglangigat ichqiatnia
                                                                             300
asquasalst tectgttace tetecigott gcaanttclg tatttattgg tactctgges
                                                                             360
                                                                             377
ateestetst tattess
       <210> 94
       <211> 495
       <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
       <222> (1) ... (495)
       <223> n = A, T, C or G
      <400> 94
                                                                              60
ccctttgagg ggttagggtc cagttcccag tggaagaaac aggccaggag aantgcgtgc
cgagetgang cagatttece acagtgacce cagagecetg ggetatagte tetgaccect
                                                                             120
                                                                             180
ccaaqqaaaag accaeettet qqqqoeatqq qetqqaqqqc aqqoetaqa qqeeecaaqq
gaaggeneea ttecqqqqet qtteccegag gaggaaggaa aggggetetg tgtqccccc
                                                                             240
```

```
acgaggaana ggccctgant cotgggatca nacacccctt cacqtgtattc cccacacaaa
                                                                                   300
tgcaagetca coaaggicce eteteagtee ettecetaca ecotgaacgg neactggeee
                                                                                   360
acacccacce agencances ecceptated generative caargaster engagesace tegasterns becommany generated tecastagan generated etternana
                                                                                   420
                                                                                   480
LEERS SOMESEESES
                                                                                   495
       <210> 95
       <211> 472
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(472)
       <223> n = A, T, C or G
       <400> 95
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                                                                                    60
cototogoas cottococas accognactit staattytte sacaataact cotsaattit
                                                                                  120
tagotgitti gagitgatio goaccactgo accacaacto aatatgaaaa otattinact
                                                                                  180
tattattat ettytyassa gtalacaatg asaattttyt tealactyta tttateaagt atystyssaa geastagata tatettettt tattalytin sattatysti geesttatta
                                                                                  240
                                                                                  300
atoggcadaa totogagtgt atgitictii: cacagteata tetoccitti gtaaciicac
                                                                                  360
thegattattt tatligtaasi gaattacaea etictleatt taagaeeetg glangtteta
                                                                                  420
tttentican tastticitt cottigtitac gitaatitig emaagaatgo et
                                                                                  472
       <210> 96
       <211> 476
       <212> DNA
       <213> Homo sapien
       <220≻
       <221> misc_feature
       <222> (1).7.(476}
       <223> n = A, T, C or G
       <400> 96
ctgaagcatt tottcaaact tolclacttt tyteattgal accigtagta agttgacaat
                                                                                   6D
gtogtgasat ticasestia istotesett cisclegitt tectticice cecasquet
                                                                                  120
ttttaactca Egaillittac acacacaaln cagaacttet tatatagect ctaagtelil
                                                                                  180
ALLCTTCACA gragatgato asagagtoot coagtotott gngcanaetg tictagniat agotggatac atacngtggg agttotataa actoatacot cagtgggact naaccassat
                                                                                  240
                                                                                  300
tgtgttagtc tcaattccta ccacactgag ggagceteec aaatcactat attettatet geaggtactc eteragaaaa aengacaggg caggettgea tgaaaaagtn acatetgegt
                                                                                  360
                                                                                  420
tacasagtot atottoctos nangtotyth aaggascast ttaatottot agottt
                                                                                  476
       <210> 97
       <211> 479
<212> DNA
       <213> Homo sapisn
       <220>
       <221> misc_feature
       <222> (1)...(479)
       <223> n = A,T,C or G
       <400> 97
activiticta atgetgatat gatetigagi etaagaatge atatgteach agaatggata
                                                                                   60
analesigot gossactiza igitottaig cassatggas ogotaatgas acacagotta
                                                                                  120
coatcgcooo tcasaactca caagtgctca tetgttgtag atttagtgta ataegactte
                                                                                  180
qallqtqctc cttcqqatat qattqtttct canatettqq qcaatnttcc ttaqtcaaat
                                                                                  240
caggetacta gaattotgtt attggatatn tgagagoatg aaatttttaa naatacactt
                                                                                  300
```

```
gtgattetna esttestcer sestttrert tatacctgrt atragræget agassaarat
                                                                            360
ntnottttta natcaeagte tittgtgttt ggaentgtno aestgaaatc tgaatgtggg
                                                                            420
                                                                            479
ttenatetta ttttttecen geenactant tnetttttta gggnetatte tganccate
      <210> 98
      <211> 461
      <212> DNA
      <213> Homo sapien
      <400> 98
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                                                                             60
tgetagttcc tgtcatctat tcgctactaa atgcagactg gaggggacca aaaaggggca
tcaactccag ctggattatt ttggagcctg caaatctatt cctacttgta cggactttga
                                                                            120
                                                                            180
                                                                            240
agtgattcag titcctctac ggatgagaga ciggotcaag aatatocica igcagottia
tgaagccact ctgaacacgc tggttatcta gatgagaaca gagaaataaa gtcagaaaat
ttacctggag aaaagaggct ttggctgggg accatcccat tgaaccttct cttaaggact
                                                                            300
                                                                            360
ttaagaaaaa ctaccacatg ttgtgtatee tggtgccggc cgtttatgaa ctgaccacco
                                                                            420
                                                                            461
tttggaataa tettgaeget cetgazettg etectetgog &
      <210> 99
      <211> 171
      <212> DNA
<213> Homo sapien
      <400> 99
gtggccgcgc gcaggtgttt cctcgtaccg cagggccccc tecetteccc aggegtccct
                                                                             60
                                                                            120
cggcqcctct gcgqgcccga qgagqagcgg ctggcgqgtq gggqgaqtgt qacccaccct
                                                                            171
rggtqagasa agcettetet agegatetga qaggeqtgee ttgqggqtae c
      <210> 100
      <211> 269
      <212> DNA
      <213> Homo sapien
      <400> 100
                                                                             60
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                                                                            120
chactgonac gacggoggcy degacagteg cangitgcage gegggegeet ggggtettge
                                                                            180
astoctdago toxconngra gaggtogtgt cangtocted gacottgacg cogtogggga
Cadocddest edadcoodd deedoddad deetoddda doccoroddd aedddoddoc
                                                                            240
                                                                            269
cqagagetac qcaggtgcag gtggccqcc
      <210> 101
      <211> 405
      <212> DNA
      <213> Homo sapien
      <400> 101
                                                                             60
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getagewagg tameagggta gggentggtt acatetteng gtenacttee tttqtegtqq
                                                                            120
                                                                            180
ttgattggtt tgtctttatg ggggcgggt gggglaggg aaacgaaqca aataacalgg
agtaggtyca coctcoctgt agascotagt tacasagcit gaggaagtte acctagtota
                                                                            240
                                                                            300
tgaccolcat tttcttgaca tcaaloutet tagaagtcag gatatctLtt agagagtcca
ctittetyga gggagattag ggtttetlige caaatccaac aaaatccact gaaaaagtig
                                                                            360
                                                                            405
galigation of acquatocco acquatattic testateggt ggmes
      <210> 102
      <211> 470
      <212> DNA
      <213> Homo sapien
      <400> 102
thetette territett tittettit titterit tittettit tittettit
                                                                             60
```

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ggcacttaat coattittat ticaassigt ciscassitt satoccatta tacggtatti
                                                                      120
teaasateta aattatteaa attageeaaa leettaeeaa ataataeeea aaaateaaaa
                                                                      180
atatactict ticagozzac tigitacata aattaaaaaa atatatacgg ciggigitii
                                                                      240
casagtacaa ttatettaae autgeaaeca titisaggaa etaaaataas eeazaacaet
                                                                      300
cogcasaggt taxagggaac ascasattot tttaceacsc cattatasss atcatatoto
                                                                      360
aaatottagg ggaatatata ottoacacgg gatotteact titactoact tigittatit
                                                                      420
ttttaaacca ttgtttqqqc ccaecact ggaalccccc ctgqactaqt
                                                                      470
      <210> 103
      <21,5> 581
      <212> DNA
      <213> Homo sapien
      <400> 103
fittittitt titittiga coccocicit ataasaaaca agitaccatt tiattitact
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tacacatatt tattttataa ttggtattag atattcaaaa ggcagctttt aaaatcaaac
                                                                      120
tasetggaaa ctgccttaga tacataatto ttaggaatta gottaazato tgcctazagt
                                                                      1.00
gaaaatotto totagotott ttgactgtaa attittgact ottgtaaaac atccaaatto
                                                                      240
attettettg tetttaaaat tatetaatet tteeatttt teeetattee aagteaattt
                                                                      300
gettetetag ceteatitee tagetettat etaetattag taagtggett titleetaaa
                                                                      360
agggaaaaca ggaagagaaa tggcacacaa aacaaacatt ttatattcat atttctacct
                                                                      420
acgitaataa aatagoatti tgigaagooa gotoxaaaga aggottagat oottilaligi.
                                                                      460
ccattttagt cactaaacga tatcaaagtg ccaguatgca aaaggiitigt qeacatttat
                                                                      540
tcaaaagcta atataagata tttcacatac tcatctlict q
                                                                      5B1
      <210> 104
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      <212> DNA
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      <400> 104
60
cactetetag atagggeatg aagazaacte atettteeag etttaaaata acaateaaat
                                                                     120
ctcttatgct atatcatatt ttaagttaaa ctaatgagtc actggcttat cutclockga
                                                                     180
aggaaatotg ttoattotto toattoatat agttatatoa agtactacot Egoatattga
                                                                     240
gaggtttttc ttctctattt acacatatat ttccatglga altiquetca aeccttatt
                                                                     300
ttcatgcaaa ctagaaaata atgtttcttt tocataagag magagaacaa tatagcatta
                                                                     360
caseactgot casattgttt gttaagttat coattateet Lagttggcag gagctaatac
                                                                     420
aastcacatt tacgacagca ataataaac lgaagtacca gttaastatc caaastaatt
                                                                     48D
amaggament tittageeta egintamita getamiteme ittacamagem titattagam
                                                                     54 D
tgzattcaca tgttattatt cctagcceaa cacaatqq
                                                                     57B
      <210> 105
      <211> 538
      <212> DNA
      <213> Homo gapien
      <400> 105
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                                                                      60
geasagtgcc ttacatttaa taaaagtttg tftctcaaag tyatcagagg aattagetat
                                                                     120
gtottgaaca coastattaa titgaggaaa atacaccaaa alacaltaag taaattatti
                                                                     180
asgetrateg agottgteeg tgasaageta esettteeco toegseectc tgagcettea
                                                                     240
seatcoacta tragoseeta astroctore gautterigo titeatting toengastat
                                                                     300
ggggtqtcac tggtaaacca acacattotg aaggatanat tactnagtga nagannotta
                                                                     360
tgtactttgc taatacgtgg atatgagttg acaagtttct ctttcttcaa tctttaagg
                                                                     42D
ggcgagaaat gaggaagaaa agaaaaggat lacgcatact gttctttcta tggaaggatt
                                                                     480
agatatgttt cottigeces tattmasses stanteatgt tractacteg tgaaacce
                                                                     538
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      <211> 473
      <212> DWA
      <213> Homo sapien
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                                                                             60
                                                                            120
atttattage totgeaactt acatatttaa attaaagaaa egitttagae aactgtacaa
                                                                            180
tttataaatg taaggtgcca ttattgagta atatatteet ceaagagtgg atgtgtccct
                                                                            240
teteccacca actaatgaac agcaacatta gtttaatttt attagtagat atacactget
gcaaacgcta attotottot coatococat qtgatattgt gtatatgtgt gagttggtag
                                                                            300
antgrateac zatetacest cascaquasg stgasqctag getgggettt eggtgasaat agactgtgtc tglelgastc sastgatetg sectatecte ggtggczaya actettegas
                                                                            360
                                                                            420
                                                                            473
cogoticote asaggegety ceaeathigt ggetetting actigities ass
      <210> 107
      <211> 1621
      <212> DNA
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      <400> 107
cgccatggca etgcagggca teteggtcat ggagetgtcc ggcctgqccc cgggcccgtt
                                                                             60
                                                                            120
cigtgetatg greetgetg acttegggge gegtgtggta egegtggace ggeeeggete
cogetacgae gtgageeget tgggeegggg caagegeteg etagtgetgg acetgaagea
                                                                            180
                                                                            240
geogeggga geogeogtge tgeggegtet gtgcaagegg teggatgtge tgetggagee
cttccgccgc ggtgtcatgg agaaactcca gctgggccca gagattctgc agcgggaaaa
                                                                            300
tocaaggett atttatgeca ggetgagtgg atttggecag teaggaaget tetgeeggtt
                                                                            360
agetggecae gatateaact atttggettt gteaggtgtt eteteaaaaa ttggeagaag tggtgagaat eegtatgeee egetgaatet eetggetgae tttgetggtg gtggeettat
                                                                            420
                                                                            480
gigtgeactg ggcattataa tggctctttt tgaccgcaca cgcactgaca agggtcaggt
                                                                            540
                                                                            600
cattgatgcz aatatggtgg aaggaacagc atatttaagt tottttctgt ggaaaactca
gaaatcgagt ctgtgggaag cacctcgagg acagaacatg ttggatgglg gaqcaccttt
                                                                            660
ctatacgact tacaygacag cagatoggga attestyget grayagess tagsacceca
                                                                            720
                                                                            7B0
gttclacgay otgetgates auggaettgg actamageet gatgmartic committed
qagcatqgat gattggccag aaatqaagaa gaagtttgca gatgtatttg caaagaaqac
                                                                            840
gaaggcagag tqqtgtcaaa totttgacqg cacagatgco tqtgtgacto cggttctgac
                                                                            900
                                                                            960
ttttgaggag gttgttcatc atgatcacaa caaggaacgg ggctcgttta tcaccagtga
                                                                           1020
ggagcaggac gtgagccccc gccctgcacc tctgctgtta aacaccccag ccatcccttc
tttcaaaagg gatcctttca taggagaaca cactgaggag atacttgaag aatttggatt
                                                                           1080
cagoogogaa gagatttato agottaacto agataasato attgasagta atsaggtaaa
                                                                           1140
agctagtote taacttebag geocaegget caagtgaatt tgaatactge atttacagtg tagagtaaca cataacattg tatgeatgga aacatggagg aacagtatta cagtgtocta
                                                                           1200
                                                                           1260
                                                                           1320
ccactctast caagaeaaga attacagact ctgattctac agtgatgatt gmattclaaa
antigettate attagggett ttgatttata aaactttggg tacttatact aaattatggt
                                                                           1380
                                                                           1440
agtfattetg cettecagtt tgettgutat atttgttgal attaagatte ttgactlata
ttttywatgg gttctagtga asaaggaatg atataltett gaagacateg alabacattt
                                                                           1500
atttocacto tigattotac aatglagaaa atgaggaaat gccecaaatt gtatggtget
                                                                           1560
аваарьсаст травассани ситераново сосевеные двальвава вазававава
                                                                           1620
                                                                           1621
      <210> 108
      <211> 382
      <212> PRT
      <213> Romo sapien
      <400> 10B
Met Ala Leu Gln Gly Ile Ser Val Met Glu Leu Ser Gly Leu Ala Pro
                                       10
Gly Pro Phe Cye Ala Met Val Leu Ala Asp Phe Gly Ala Arg Val Val
                                  25
Arg Val Asp Arg Pro Gly Ser Arg Tyr Asp Val Ser Arg Leu Gly Arg
                             40
Gly Lys Arg Ser Leu Val Leu Asp Leu Lys Gin Pro Arg Gly Ala Ala
                        55
                                               60
Val Leu Arg Arg Leu Cys Lys Arg Ser Asp Val Leu Leu Glu Pro Phe
```

```
Arg Arg Gly Val Met Glu Lys Leu Gln Leu Gly Pro Glu Ile Leu Gln
                                     90
Arg Glu Asn Pro Arg Leu Ile Tyr Ala Arg Leu Ser Gly Phe Gly Gln
            100
                                105
Ser Gly Ser Phe Cys Arg Leu Ala Gly His Asp Ile Asn Tyr Leu Ala
                            120
                                                 125
Lou Ser Gly Val Leu Ser Lys Ile Gly Arg Ser Gly Glu Asn Pro Tyr
                        135
                                             140
Ala Pro Leu Asn Leu Leu Ala Asp Phe Alo Gly Gly Gly Leu Met Cys
                    150
                                        155
Ala Leu Gly Tie lie Met Ala Leu Phe Asp Arg Thr Arg Thr Asp Lys
                                    170
                165
Gly Gln Vax The Asp Ala Aon Met Val Glu Gly Thr Ala Tyr Leu Ser
            180
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<pre>&lt;400&gt; 125 aclitaluta ctqqctatqa aatagatggt cttqaaaaag aggtqataqc tcttcaqagq ctacagtctq catttggcaq aaatgaagat ttgcctcacc aaacaaaaqt gaaacaactq ctcttgaaqt atcaqtcact tttqagaatq catqqtqqqq gtcttqcatc tgtaagaatq cagqaaacat cagaaccact atttctagc ctctttgctt gt</pre>	acttgtgact gaatttggat agagasaatt tttcttagtt gaattgattt	tttgctcaga taaatgagga ttcaggaaaa actgcatact tgcttttgca	tgctgaægaa tgctgaægat aagæcægtgg tcatggætoc agæætctcag	60 120 180 240 300 360 420 432
<210> 126 <211> 112 <212> DNA <213> Homo sapien				
<400> 126 acecaacttg matagtaawa tagamaciga agtamgaatg atattteece ccagggates	gctqeaatlt ccaaatattt	ctesttcact atessattt	LLctaeccat gt	60 112
<210> 127				

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<211> 54
       <212> DNA
       <213> Homo sapien
      <400> 127
accecgasac cacaaecsag siggaagcat castecacti gecaegcace gcag
                                                                             54
       <210> 128
      <211> 323
       <212> DNA
       <213> Homo sapien
      <400> 128
acctoattag taatigitti gitgiticat tittitictaa igiciccoot ciaccagoto
                                                                             60
acctgagata acaqaatgaa aatggaagga cagccagatt tetectttge tetetgetca
                                                                            120
ttotototga agtotaggtt acceattttg gggacocatt ataggoaata aacacagtto
                                                                           180
ccaaagcatt tggacagttt cttgttgtgt tttagaatgg ttttcctttt tcttagcctt
                                                                           240
tteetgeasa aggeteacte agtecettge ttgeteagtg gaetgggete eccagggeet
                                                                            300
aggetgeett etttteeatg tee
                                                                           323
      <210> 129
      <211> 192
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (192)
      \langle 223 \rangle n = A,T,C or G
      <400> 129
acatacatgi gigiatatti tiaaatatca cittigiatc acicigacii titagcatac
                                                                            60
tgaaaacaca ctaacataat tiniqigaac catgaicaga tacaacccaa atcaitcaic
                                                                           120
tagcacatte atetgtpata managatagg tgagttteat tteetteacg ttggccaatg
                                                                           18D
gatamacaam qt
                                                                           192
      <23.0> 130
      <211> 362
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(362)
      <223> n - A, T, C or G
contituta togaatgast asactstats titsaanatt tanccacaac cicitigaca
                                                                            60
tateatgacg caacaasaag gtgctgttta gtcctatggt tcagtttatg cccctgacaa
                                                                           120
gtttccattg tgttttqucq atcttctqqc taatcgtggt atcctccatg ttattagtaa
                                                                           180
ttotgtatto cattttotta acqcclogta gatqtaacct gotangaggo taacttata cttatttaaa aqctcttatt ttgtggtcal taasatqqca atttatgtgc agcacttat
                                                                           240
                                                                           300
tgcagcagga agcocgtgtg ggttggLtgt aaeqctcttt gclaatctta amaagtaatg
                                                                           360
99
                                                                           362
      <210> 131
      <211> 332
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
```

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<222> (1)...(332)
      <223> n - A, T, C or G
      <400> 131
ctttttgass gategtgtee acteetgtgg acatettgtt tteatggagt tteccatgea
                                                                             60
gtangactgg tatggttgca gctqtccaga taaaaacatt tqaaqagctc caaaatqaga
                                                                            120
gtteteccag gttegecetg etgetecaag teteageage agestetttt aggaggeate
                                                                            180
                                                                            240
ttotquacta gattaaggos gottgtaaat otgatgtgat ttggtttatt atcoaactaa
cttccatctg ttatcactgg agasagecca gacteeccan gaenggtacg gattgtggge
                                                                            300
atanaaggat tqqqtqaaqc tqqcqttqtq qt
                                                                            332
      <210> 132
      <211> 322
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... [322]
      <223> n = A,T,C or G
      <400> 132
auttitiquea tittigialat ataascaato tigggacati ciccigaaaa ciaggigico
                                                                             60
eqtqqcteeq aqaactcqet ttcaagceat tctqasaqqa aaaccagcat gacacagaet
                                                                           120
ctc&aattcc caaacagggg ctctgtqqqa saastgaqgg aggacctttg tatctcgggt
ttlagcaagt tasaatgaan atgacaggaa aggcttattt atcaacaaag agaagagttg
                                                                           180
                                                                           240
qqAtgcttct aaAsaAsact ttggtagaga saataggaat qctnaatcct aqqqaagcct
                                                                           300
gtaacaatct acaattggtc ca
                                                                           322
      <2105 133
      <211> 278
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> {1}...(278)
      \langle 223 \rangle n = A,T,C or G
      <400> 133
acaegcette acaagttiaa ctaaattggg attaatettt etgtanttat etgeataatt
                                                                            60
cttgfttttc tttccatctg gctcctgggt tgacaatttg tgggaacaac tctattgcta
                                                                           120
ctatttasaa asaatcacaa atctttccct ttaagctatg ttnaattcas actattcctg
                                                                           180
ctattcctqt tttqtcaaaq aaattatatt tttcaaaata tqtntatttq tttqatqqqt
                                                                           240
cocacgaeae actaataaee accacagaga ccagootg
                                                                           278
      <210> 134
      <211> 121
      <212> DNA
      <213> Homo sapien
      <220>
      <221> mj.sc_feature
      <222> (1) ... (121)
      <223> n = A, T, C or G
      <400> 134
yttanaaaa ctiqtitagc tccatagagg aaaqaatgit aaactitgia tittaaaaca
                                                                            60
tgattetetg aggitaaaci tggitticaa atgitatiit taetigtaii tigeittigg
                                                                           120
                                                                           121
      <210> 135
```

```
<211> 350
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(350)
      <223> n - A,T,C or G
      <400> 135
actianaace atgeotagea cateagaate coteaaagaa cateagtata ateetatace
                                                                              ត្តព
atancaaştg gigacigşii aaşcgigcga caaaggicag cişşcacatt actigiştgi
                                                                             120
                                                                             100
easettgata ettttgttet aagtaggase tagtatacag tneetaggan tggtaeteca
gggtgcccc caactectgc ageogetect ctgtgccagn ecctgnaagg aacttteget
                                                                             24D
                                                                             300
coacctemat caagecetgg gecatgetae etgemattgg etgmaeammac gftttgetgmag
ttoccaagga tgcaaagcot ggtgctcaac tcctggggcg tcaactcagt
                                                                             350
      <210> 136
      <211> 399
      <212> DNA
      <213> Homo sapiem
      <220>
      <221> misc_feature
      <222> (1),...(399)
      \langle 223 \rangle n = A, T, C or G
      <400> 136
                                                                              60
tgtaccgtga agacgacaga agttgcatgg cagggacagg gcagggccga ggccagggtt
getgtgattg tateegaata nteetegtga gaaaagataa tgagatgaeg tgageageet
                                                                             12Ď
gcagacttgt gtctgccttc aanaagccag acaggaaggc cctgcctgcc ttqgctctga
                                                                            180
cetggeggee agreeagerag cearaggtgg gettetleet tttqtggtga caachecaag aaaactgeag aggeeeaggg teaggtgtna gtoggtangt gacealaaaa nacnaggtgn
                                                                            240
                                                                            300
toccaggase coggocasa coesteecos estacagoes pestgeecas tegestrate
                                                                             360
                                                                            399
gotgoayang gaidaagoag coagnigite toclotogt
      <210> 137
      <211> 165
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> {1}.T. {165}
      \langle 223 \rangle n - A,T,C or G
actggtgtgg tngggggtga tgctggtggt anaagttgan gtgactcan gakggtgtgt
                                                                             60
ggaggaagtg tgtgazogta gggatqtagu nglitttggco gtgcLeaaatg agcttcggga
                                                                            120
                                                                            165
ttggctggtc ccactgqlqq tcactgtcat tggtggggLt cctgt
      <210> 138
      <211> 338
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) .T. (33B)
      <223> n - A, T, C or G
      <400> 13B
```

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actoactgga atgocacatt cacaacagaa toagaggtot gtgaaaacat taatggotoo
                                                                            60
ttaacttoto cagtaagaat cayggacttg awatggamac gttaacagco moatgcocaa
                                                                           120
tgctgggcag totoccatgo officeacagt gamagggott gagammate scatocaatg
                                                                           180
tcatgtgttt ccagccacac caaaaggtgc ttggggtgga gggctgggg catananggt
                                                                           240
cangcotoag gaagootoaa gitcoattoa gottigouae igiacattoe ecaintitas
                                                                           300
asaaactgat gccttttttt tttttttttg taaaallc
                                                                           338
      <210> 139
      <211> 382
      <212> DNA
      <213> Homo sapien
      <400> 139
gggaatottg gtttttggc0 totggtttgc ctatagccga ggccactttg acagaacaaa
                                                                            60
yaaayyyact togaqtaaya aqqtgattta cagecageet aqtgeeegaa gtgaaggaga
                                                                           120
atteamacag acctegiost treiggigig ageetgging geneaceged tateatetge
                                                                           180
etttgcctta ctcaggiget accggactet ggcccctgat gtctgtagtt tcacaggatg
                                                                           240
cottettigt ettetacece ceacagggee ecetactict teggatgtgt titteataat
                                                                           300
gicagetatg igeoceated ideticated detection titoctacca etgoigagig
                                                                           360
gcclggaact tgtttaaagt gt
                                                                           3BZ
      <210> 140
      <211> 200
      <212> DNA
      <213> Homo mapien
      <220>
      <221> misc_feature
      <222> (1).T. [200]
      <223> n = A,T,C or G
      <400> 140
ecomeancet cettetgetg tgetngatte tactataggg getingeten tectaaanat actetteatt taacancett tgetaagtge caggetgeac tetgeteeat anaattattg
                                                                            60
                                                                          120
tittcacati icaaciigta igigitigic icitanagca tiggigaaai cacatatitt
                                                                          180
atattcagca taaaggagaa
                                                                          200
      <210> 341
      <211> 335
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> {1}.\(\.\)(335)
      <223> n = A,T,C or G
      <400> 141
actiliettt caeeacactc atatgttgca aaasacacat agaaasataa agtttggtgg
                                                                           6D
gggtgctgac taaacttcaa gtcacagact tttatgtgac agattggagc agggtftgft
                                                                          120
atgcatgtag agaacccaaa ctaatttatt aaacaggata gaaacaggot gtotgggtga
                                                                          180
satiggticity agaaccatoo asticaccity toagatycity atamactago tottoagaty
                                                                          240
tttttctace agttcagaga inggitaatg actanticca atggggaass agcaagaigg
                                                                          300
attcacasac caagtaattt taaacaaaga cactt
                                                                          335
      <210> 142
      <211> 459
      <212> DNA
      <213> Homo sapien
      <22D>
      <221> misc_feature
```

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<222> (1)...(459)
      <223> n = A, T, C or G
      <400> 142
accaggitaa tattgocaca tatatootti ocaattgogg gotaaacaga ogigtattia
                                                                            60
gggttgttta aagacaaccc agcttaatat caagagaaat tgtgaccttt catggagtat
                                                                           120
ctgatggaga aaacactgag tittgacaaa tottattita ticagatago agtotgatca
                                                                           180
cacatggtcc aacaacactc aaataataaa tcaaatatna tcagatgtta aagattggtc
                                                                           240
ttoaaacato atagocaato atgoecogot tocctataat eteteogaea taaaaceaea
                                                                           300
traacacete agtggccace asaccattes gracegette ettaartgtg agetgtttga agetaceagt etgagcacta ttgactatnt ttttcanget etgastaget etagggstet
                                                                           360
                                                                           420
cagcangggt gggaggaacc agctcaacct tggcgtant
                                                                           459
      <210> 143
      <211> 140
      <212> DNA
      <213> Homo sapien
      <400> 143
                                                                            60
acattteett coaceamete aggacteetg gettetgtgg gagttettat cacetgaggg
                                                                           120
eestcoaeee agtolotoot ageaaggast egtgtcacca accccaccca totccctgag
accetcogec trocotgtgt
                                                                           140
      <210> 144
      <211> 164
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(164)
      <223> n = A, T, C or G
      <400> 144
actionqtaa caacatacaa taacaacatt aagtgtatat tgccatcttt gtcattttct
                                                                            60
stotatacea etetecette tgasascaen sateactane esateactta tacasatteg
                                                                           120
aggcenttas tocalettig tittcsataa ggaaaaaaag aigi
                                                                           164
      <210> 145
      <211> 303
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> {1}....(303)
      \langle 223 \rangle n = A, T, C or G
                                                                            60
acquacca tocaactite battigteet egcasecate cagnageset icciaeacea
actggaggqt attbataccc aattateeca itesttaaca tgemetente oteaggmtat
                                                                           120
quadqueage totestesqt eggercagge atchagatac taccattegt stasactics
                                                                           180
                                                                           240
gtagggagt coatcoaagt gacaggtota atcaaaggag gasatggaac atsagcocag
tagtawaatn tigchkaget geascageca caasagactt eccgccgtgg tgattaccat
                                                                           300
                                                                           303
Caa
      <210> 146
      <211> 327
      <212> DNA
      <213> Komo sapien
      <220>
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```
<221> misc feature
      <222> (1) ... (327)
      <223> n - A,T,C or G
                                                                         60
actionagete auttaquagt igtetetique titeateune tietecetigi getecatique
                                                                        120
actggcctgg agtgactcat tgctctggtt ggttgagaga gctcctttgc caacaggcct
ccaagicagg gotgggatti gitteetite cacattotag caacaatatg ciggocacti
                                                                        180
cotquaragg gagggtggga ggagccagca tggaacaagc tgccactttc taaagtagcc
                                                                        240
agacttyccc etgggeetgt cacacetact gatqueette tytgeetgea ggatggaatg
                                                                        300
                                                                        327
taqqqqtqaq ctqtqtqact ctatqqt
      <210> 147
      <211> 173
      <212> DNA
      <213> Homo sapien
      <220>
      <221.> misc_feature
      <222> (1) ... (173)
      <223> n - A, T, C or E
      <400> 147
acattqtttt tttgagataa agcattqana gagctctcct taacgtgaca caatggaagg
                                                                         б٥
actggaacac atacccacat ctttgttctg agggataatt ttctgataaa gtcttgctgt
                                                                        120
                                                                        173
ataticaago acatatgita tatattatto agitocatgi tiatagoota git
      <210> 148
      <211> 477
      <212> DNA
      <213> Homo sapien
      <221> misc_feature
      <222> {1}...(477)
      <223> n - A, T, C or G
      <400> 148
acaaccactt tatctcatcg aatttttaac ccaaactcac tcactgtgcc tttctatcct
                                                                        60
                                                                        120
atgggatata ttatttgatg ctocatttca tcacacatat atgaataata cactcatact
geoctactae etgetgeaat aateacatte ectteetgte etgaceetga ageoattggg
                                                                        180
gtggtcctag tggccatcag tccangcctg caccttgage cettgagete cattgctcae
                                                                        240
                                                                        300
necancecae eteacegace ceatectett acacagetae eteettgete tetaacecca
                                                                        360
tagattaint coazattoaq toaattaagt tactattaac actotacoog acatgicoag
caccactggt asycottete esgecaseac sesescaese sesencaeae acacacatat
                                                                        420
coaggoadag gutacoleal etheadaate acceptitaa thacuatgel atggtgg
                                                                        477
      <210> 149
      <21,1> 207
      <212> DNA
      <213> Homo sapien
      <400> 149
Acagttgtat tataatatca aqaaataaac ttgcaatgag agcatttaag agggaagaac
                                                                        60
teacgtattt tagegagoca aggaaggttt otgtggggag tgggatgtaa ggtggggoct
                                                                        120
                                                                        180
gatqataaat aagaqtcaqc caggtaagtg qgtggtgtgg tatgggcaca qtgaagaaca
                                                                        207
tttcaggcag agggaacagc agtgaaa
      <210> 150
      <211> 111
      <212> DNA
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<213> Homo sapien

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<220>
      <221> misc_feature
      <222> (1)...(111)
      \langle 223 \rangle n = A,T,C or G
      <400> 150
accitgallit cattgoiget closiggass occasotate tasettaget assacatggg
                                                                         60
cacttasatg tyghcagtgt ttggacttgt taactantgg catctttggg t
                                                                        111
      <210> 151
      <231> 196
      <212> DNA
      <213> Homo sapien
      <400> 151
agogogoag gtoatattga acattocaga tacotatoat tactogatgo tottqataac
                                                                         60
agcaagatgg ctitgaacto agggtoacca coagotatto gacotfacfa tigaadaccat
                                                                        120
ggataccaac oggaaaacce etatocegea cageecacte tegteceeac tetetaceae
                                                                        160
gtgcatccgg ctcagt
                                                                        196
      <210> 152
      <211> 132
      <212> DNA
      <213> Homo sapien
      <400> 152
acapcauttt uucatqCacq ennggaqean ttcctmaatg taggagaaag ataacaqaac
                                                                         60
ettuocollu lookologig giggaaacci gaigottiai gifgacagga atagaaccag
                                                                        120
gagggagtti gt
                                                                        132
      <210> 153
      <211> 285
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(285)
      <223> n = A, T, C or G
      <400> 1.53
acaanaccca nganaggcca ctggccgtgg tgtcatggcc tccaaacatg aaagtgtcag
                                                                         60
cturigetet tatgteetea tetgacaart etttaceatt tetateeteg efeageagga
                                                                        120
gcacatcaat aaagtccaaa gtottggaet tggccttgge ttggaqqaaq teatcaacac
                                                                        180
ectagetagt gagggtgegg egeogeteet ggatgaegge atetgtgaag tegtgeacea
                                                                        240
gtctgcaggc cctgtggaag cgccgtccac acggagtmag gaatt.
                                                                        28.5
      <210> 154
      <211> 333
      <212> DNA
      <213> Homo sapien
      <400> 154
accepages tottogogous oggetteets acceptively toesseges teltalcass
                                                                         60
accopasatt tttoottaaa tatolilaac tgaaqqqqto aqootottga ciqcaaaqao
                                                                        120
cotaagoogy ttacacagut aectocoact agountgeth totgasatto chochte
                                                                        180
attggcacag gagtogeegg tollcagete coclecters tggmacgage ctctgatttg
                                                                        240
aqtitoacaa attotoqqqc cacctegtea litgetectet qasataaaat ceggagaatg
                                                                        300
gloaggootg totoatcoat alggatottc cgg
                                                                        333
      <21.0> 1.55
```

```
<211> 308
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(308)
      <223> n = A, T, C or G
      <400> 155
                                                                        60
actiquaata ataaaaccca cetcecagtg ttgtgtcaaa gatcatcagg gcatggatgg
quadqtqctt tqqqooctqL amagtqccta acacatqatc gatgattttt qttataatat
                                                                        120
                                                                       180
tigaatcace etgcatecea ectotoctec tegcococa coccagooo
atuscagete aetgeletgt teatecagge coageatgta gtggetgatt ettettgget
                                                                       240
gottttagec tecamaagtt tetetgaage caaccaaace tetangtgta aggeatgetg
                                                                       300
                                                                       30B
gccctggt
      <210> 156
      <211> 295
      <212> DNA
      <213> Homo mapien
      <400> 156
                                                                        60
accttgotog qtqcttqqaa catattaqqa actcaaaata tqaqatqata acaqtqccta
ttattgatta ctgagagaac tgttagacat ttagttgaag allttclaca caggaactga
                                                                       120
gaataggaga ttatgtttgg coutcatatt ctotoclatc checttgect cettctatgt
                                                                       180
                                                                       240
ctaatatatt ctcaatcaaa taaqqtlaqc ataatcaqqa aatcqaccaa ataccaatat
                                                                       295
anancengat gtotatoett angatttto antegaseec saattamong actat
      <210> 157
      <211> 126
      <212> DNA
      <213> Homo sapien
      <400> 157
                                                                        60
acaagtttaa atagtgotgt cactgtgoat gtgctgaaat gtgaaatcca ccacatttc:
                                                                       120
gaagagcasa acaasttoty toatytasto totatottyy glogtycyts tetotytoco
                                                                       126
cttagt
      <210> 158
      <211> 442
      4212> DMA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1) ... (442)
      \langle 223 \rangle n - A, T, C or G
      <400> 15B
                                                                        60
acccactggt cttggaaaca cccatcctta atacqatgat ttttctgtcg tgtqaaaatg
                                                                       120
aanccagcag getgeeeta gteagteett cetteeagag aaaaagagat tigagaaagt
gcctgggtaa ttcaccatta atttcctccc ccaaactclc tyaytcttcc cttaatattt
                                                                       180
etggtggtte tgaccasage aggtestggt ltgtlqages tilqqqatee caqlqsaqls
                                                                       240
                                                                       300
natifitigta goottgoata citageoccit eccacqeaca eauggaqigg cagastagts
ccaecctgt tttcccagtc cacgtagaca gattcacagt geggaattet ggaagetgga
                                                                       360
nacagacggg ctctttgcay agcogggant ctgagangga catgagage totgcctctg
                                                                       420
                                                                       442
totteattet etgatgteet gt
      <210> 159
      <211> 498
```

<212> DNA

```
<213> Homo sapien
      <220>
       <221> misc feature
       <222> (1) ... (498)
      <223> n → A, T, C or G
      <4D0> 159
acttocaggé aacgtigtty tittocgtiga goofgaacty atgggtgacy tigtagytto
                                                                             60
toceacaega actgaggttg cagagogggt agggaagegt gotgttocag ttgcacotgg
                                                                            120
getgetgtgg actgttgttg attecteact acggcccaag gttgtggaac tggcanaaag gtgtgttgtt gganttgage tegggegget gtggtaggtt gtgggetett caacaggage
                                                                            180
                                                                            240
tgotgtggtg cogggangtg aangtgttgt gtcacttgag cttggccage tetggaaagt
                                                                            300
antanattot tootgaaqqo cagoqottqt qqaqotqqoa nqqqtoantq ttqtqtqtaa
                                                                            360
egaaccagty etgetytygg tyggtytana teeleeacaa ageetyaagi tatggtyten
                                                                            420
teaggtaene etgliggttlic egtigtiootig ggongotigtig qaaggttigte nettigtioaco
                                                                            480
aagggaalaa gotgtggt
                                                                            498
      <210> 160
      <21.1> 380
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(3B0)
      \langle 223 \rangle n = A, T, C or G
      <400> 160
acctgeated agetteectg coasactese assgagaest essectetog seagggasse
                                                                             60
agottoaggo tacttocaçó agacagagos accaquagos asacamenta, toccatigost
                                                                            120
99a8Callac atagagasa otganasatg tggggtctgs ggaagccatt tgagtctggc
                                                                            180
cactagacat otoatcagno acttgtgtga agagatgccc catgaccoca gatgccttc
                                                                            240
coaccoutae etecatotea caesettgag etttecaete tgtataatte taacateetg
                                                                            300
pagasaaatg gcagtttgac cgaacctgtt cacaacggta gaggctgatt tctaacgaaa
                                                                            360
cttgtagaat gaagcctgga
                                                                            3B0
      <210> 161
      <211> 114
      <212> DNA
      <213> Homo sapien
      <400> 161
actocacate coetetgage aggoggitigt egitemaggit gitattiggee tigeotolea
                                                                             60
cactgteeac togecoctta tocacttout gettaaleec tegasagage atot
                                                                           114
      <210> 162
      <211> 177
      <212> DNA
      <213> Homo sapien
      <400> 162
acttle:gaa tcgaateaaa tgatacttag tgtagtttta atatoctcat atatatcaaa
                                                                             6D
gittisciec inigataati tigiaaacca ggiaaccaga acatocagio atacagotii
                                                                           12D
Legigatata tascitegoa ataaccoagi ciggigatac ataaaactac toacigi
                                                                           177
      <210> 163
      <211> 137
      <212> DNA
      <213> Homo sapien
      <220>
```

```
<221> misc_feature
      <222> (1)...(137)
      <223> n - A, T, C or G
      <400> 163
catttataca gacaggcgtq aagacattca cgacaaaaac gcgaaattct atcccgtgac
                                                                              60
canagaaggo agotacgot actoctacat cotggogtgg gtggcottcq cotquacott
                                                                             120
catcagoggo atgatgt
                                                                             137
      <210> 164
      <211> 469
      <212> DNA
      <213> Homo sapiem
      <220>
      <221> misc_feature
      <222> (1) ... {469}
      \langle 223 \rangle n = A,T,C or G
      <400> 154
chtatemena tgaatgttet eetgggeage gttgtgatet tigeeacett egigaettta
                                                                              60
tgcastgcat catyctaltt Catacctast gugggagttc caggagattc aaccaggaaa
                                                                             120
                                                                             180
tgCAtggatC tc0aaqgamm Cmaacaccca ataaactcgg agtggcagac tgacaactgt
gagacatgea ettgeféega sacagaaatt toatgttgéá cécttyttte tácacetgtg
                                                                             240
ggttatgaca angaceactg cossagests ttosagengs aggestosan gtatatogtg
                                                                             300
gtggagaaga aggacccaaa aaagaccigt totgtoagtg aatggataat otaatgtoot
                                                                             360
totagtagge acagggetee caggecagge otcattotoc totaggectot aatagteaat
                                                                             420
gattgtgtag ccatgcctat cagtassaeg atntttgsgc asscicttt
                                                                             469
      <210> 165
     ·<211> 195
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... {195}
      \langle 223 \rangle n - A,T,C or G
      <400> 165
acagifitti atanatateg acattgeegg cacttgtqtt cagifftcala augetggtgg
                                                                             60
atoogetgic atocactatt cettggetag agteseast, sticklatas cocatétore
                                                                            120
tgcaggccgc cogccogtag ttotcgttcc agtcgtcttg gcacecaggg tgccaggact
                                                                            180
                                                                            195
tectetgaga tgagt
      <210> 166
      <211> 383
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(383)
      \langle 223 \rangle \rho = A, T, C or G
      <400> 166
scatcttagt agtgtggcac atcaggagge catcagggte acagtcactc atageotoge
                                                                             60
cgaggtcgga gtccacacca ccggtgtagg tgtgctcaat cttgggcttg gcgcccacct ttggagaagg gatatgctgc acacacatgt ccacaaggc tgtgaactcg ccacaggatt
                                                                            120
                                                                            1.00
ttigcagace agoctgagea aggggcggat qtteagette séclecteut tegteaggtg
                                                                            240
gatgeceace tegtetangg teegtgggaa qutggtgtee aenteaceta cancetggge
                                                                            300
gangatotta taaaqaggot ocmagataaa otooxoqaaa ottobottqqq aqobqotagt
                                                                            360
```

```
nggggccttt ttggtgaact ttc
                                                                                    3B3
       <210> 167
       <211> 247
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... [247]
       <223> n = A, T, C or G
       <400> 167
acagagecag accttggeca tamatgaane agagattamg actamacece aagteganat
                                                                                     60
tygogcagaw actggagcaa gaagtgggcc tggggctgaa gtagagacca aggccactgc
                                                                                   120
Catanecata cacagageca acteteagge caaggenate etteggegeag anecagagae teaaletgan tecaaaaeteg tegetegaae actegeteate acanaegeae teactetgae
                                                                                   180
                                                                                    240
tgangte
                                                                                   247
       <210> 168
       <211.> 273
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1).T.(273)
       \langle 223 \rangle n = A, T, C or G
       <400> 168
actictaagt titictagaag tggaaggatt gtanicatoo tgaaaatggg titacticaa
                                                                                    60
estactan ectipitati cachactate tatactana gigicatati tecacanaga gotgacecat gageolynat titeactest ecotgagaag ecetificag tagggigge
                                                                                   120
                                                                                   100
ABTICCCBBC Incettgoca caageticce appointed coordgaaaa chocagettg
                                                                                   240
agtoccaget acactoatgg gotgocctgg goa
                                                                                   273
       <210> 169
       <211> 431
       <212> DNA
       <213> Nomo sapien
       <220>
       <221> misc feature
       <222> (1)... (431)
       <223> n = A, T, C or G
       <400> 169
acagoottag officeceasa ofceasagte teagtgeaga aagateatet teeageagte
                                                                                    60
aget cagace agggt casas gatgtgacat caacagttte togttteaga acaggtteta
                                                                                   120
ctactgicas stgscccccc stactionic saaggetgtg gtasgttitg cacaggtgag
                                                                                   180
ggcagcagas agggggtant tectgatgga caccatette tetgtataet ecacactgae
                                                                                   240
cttgccatgg gcasaggccc ctaccacasa aacsatagga toactgctgg gcaccagute
                                                                                   300
acgcaratca ctgaraaccg ggatggaaaa aqaantqooa actitoatar atccaactggaaaagtgatct qatactggat trttaattar cticaaaagc ttotqqqqqc catcagctgr
                                                                                   360
                                                                                   420
tegaacactg a
                                                                                   431
       <210> 170
       <211> 266
       <212> DNA
       <213> Homo sapien
       <220>
```

```
<221> misc_feature
            <222> (1)...(266)
            <223> n = A, T, C or G
            <400> 170
                                                                                                                                             60
acctqtqqqc tqqqctqtta tqcctqtqcc qqctqctqaa aqqqaqttca qaqqtqqaqc
teasggaget engeaggest trigecaane eterecanag canagggage sacetacact
                                                                                                                                           120
ccccóctaga aagacaccag attggagtcc tgggaggggg agttggggtg ggcatttgat
                                                                                                                                           180
                                                                                                                                           240
gtatacttgt caccidents sangasccas agassaansa sacsaanats anatissect
                                                                                                                                           266
tcassgctsg gggtctggca ggtgga
            <210> 171
            <211> 1248
            <212> DNA
            <213> Homo sapien
            <22D>
            <221> misc_feature
            <222> (1)...(1248)
            \langle 223 \rangle n = A,T,C or G
            <400> 171
ggoagcoaaa toataaacgy cgagyactoc agcccdcact cgcagcccty gcagycggca
                                                                                                                                             60
ctgytcatgg ammagmatt sttolgotog ggcgleetgg tgentcegem gtgggtgetg
                                                                                                                                           120
                                                                                                                                            180
tragrogram antititions gasquagty ragagetreet acarcategy getgggeetg
cacagtetty appendaces adadecaddd adecadatdd todadecad ceteteedta
                                                                                                                                           240
cggcacccag aglacaacag accettgete getaacgace teatgeteat caagttggac
                                                                                                                                           300
gaaloogtok nngagtotga caccatoogg agcatoagca tigottogca gigocotaco
                                                                                                                                            360
peddadaect crrdcered treracted adreract casedaecadae descretaece dederates accesades dresades descretaece dederates accesades dresades descretaece dederates accesades dresades descretaece descretaece accesades dresades descretaece des
                                                                                                                                            420
                                                                                                                                            480
                                                                                                                                            540
ascygigact etggggggee cetgatetge aacyggtact tgcagggcet tgtgtettte
                                                                                                                                            600
                                                                                                                                            660
ggaaaagccc cgtgtggcca agttggcgtg ccaggtgtct acaccaacct ctgcaaalle
                                                                                                                                            720
actgagtgga tagagaaaac cgtccaggcc agttaactct gggggactggg aacecatgaa
attgaccece anatacatec tgcggnagga attcaggnat atctgttece agecoctect
                                                                                                                                            780
coctcagged caggagtoca goodcocage coctcctede teaseccase ggtacagate
                                                                                                                                            840
 cocagocot cotocutosa auccaggagt coagacecce cagementes teceteagae
                                                                                                                                            900
coaggagtou agococtect coctoagace caggagtena gacereceag ecectectee
                                                                                                                                            960
ctcagaccos aggglocage concesence ctentecete agactcagas gtccasecce coaseconte attenceage consequence caggtoceag coestentes ctcagaccos
                                                                                                                                          1020
                                                                                                                                          10B0
gegatecest accectage contected acacagigee cecitatage acquiracce
                                                                                                                                          1140
auccliacca gttggttttt catttttngt coettteece tagatecaga aataaagttt
                                                                                                                                          1200
                                                                                                                                          1248
sadadeadud cerssesses sessesses sessesses sessesses
             <210> 172
             <211> 159
             <212> PRT
             <213> Homo sapien
             <220>
             <221> VARIANT
             <222> {1}...(159)
             <223> Xaa = Any Amino Acid
             <400> 172
 Met Val Glu Ala Ser Lev Ser Val Arg His Pro Glu Tyr Asn Arg Pro
                                                                         10
                                   5
   J
 Lau Lau Ala Asn Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser
                                                                                                        30
                                                                 25
                         20
 Clu Ser Asp Thr Ile Arg Ser Ile Ser Ile Ala Ser Gln Cys Pro Thr
                                                         40
 Ala Gly Asn Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Asn Gly
```

```
50
                           55
 Arg Met Pro Thr Val Leu Gln Cys Val Asn Val Ser Val Val Ser Glu
                                            75
 Glu Val Cys Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met Phe
                                        90
 Cys Ala Gly Gly Gly Gln Kaa Gln Kaa Asp Ser Cys Asn Gly Asp Ser
              100
                                    105
                                                         110
Gly Gly Pro Leu Ile Cys Asn Gly Tyr Leu Gln Gly Leu Val Ser Phe
          115
                               120
 Gly Lys Ala Pro Cys Gly Gln Val Gly Val Pro Gly Val Tyr Thr Asn
     130
                           135
                                                140
 Leu Cys Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Ala Ser
 145
                       150
       <210> 173
       <211> 1265
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(1265)
       \langle 223 \rangle n = A, T, C or G
       <400> 173
 ggcagcccgc actcgcagcc ctqgcaggcq gcactqqtca tggaaaacqa attgttctgc
                                                                             60
togagegtee tegitgeatee geagtgegtg cigitageeg caeacigtit ceagaactee tacaccateg geotgigeet geacagiett gaggeegace aagageeagi gageeagatg giggageeae gaccettget egetaacgae
                                                                            120
                                                                            180
                                                                            240
 ctcatgetea tezagtigga egaateegig teegagieig acaccateeg gageateage
                                                                            300
 attgettege agtgeectae egeggggaac tettgeeteg titetggetg gggtetgetg
                                                                            360
gogaacggig ageteacggg tgigigietg ecctetteaa ggaggiecte igeccagteg
                                                                            420
cggggggttga cccagageto tgogteccag gcagaatgec taccgtgctg cagtgogtga
                                                                            4 B O
acqtqtcqqt qqtqtctqaq qaqqtctqca qtaaqctcta tqacccqctq taccacccca
                                                                            540
geatottetg egeeggegga gogeaagace agaaggaete etgeaaeggt gaetetgggg
                                                                            600
govectual obscaacand tacttgoage secttate tetograms secretate
                                                                            660
gecasgitag egigeesggi gielacanna sectologiaa atteactigag logstagaga
                                                                            720
asaccyteca gyccagttas ctetyggyac tyggaacen tygaastlgac coccassiac
                                                                            780
atcotgogga aggasticag gastatotgt toccagoooc toctooctca gooccaggag
                                                                            840
tecaggeece cagecostee teceteaaac caagggtaca gatecocage costeetese
                                                                            900
tragacerag gagteragae ecoscagere etecterete agaceragga gtreagere
                                                                           960
treteentea gacceaggag tecagacese esagecests etecetraga cecaggggtt
                                                                          1020
gaggeeecca accectecte etteagagte agaggteeaa geeeccaace cetegtteee
                                                                          1080
cagacceaga ggfmnaggte ecageceete tteenteaga eccagnggte caatgecace
                                                                          1140
tagattttcc ctgnacacag tgcccccttg tggnangttg acccaacctt accagttggt
                                                                          1200
ttttcatttt tngtcccttt cccctagatc cagaaataaa gtttaagaga ngngcaaaaa
                                                                          1260
88888
                                                                          1265
      <210> 174
      <211> 1.459
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(1459)
      <223> n - A,T,C or G
      <400> 174
ggtcagccgc acactgitte cagaagtgag tgcagagete etacaccate gggetgggee
                                                                            60
tgcacagtot tgaggoogac caagagocag ggagocagat ggtggaggoc ageototoog
                                                                           120
tacggcacco agagtacaec agaccottgo togotaacga cotcatgoto atcaagttgg
```

```
240
acquatcogt grocgagtor gacaccated agageateug cartigorteg cagtgoodta
                                                                                                                           300
cogogogoa ctottgoote etttotget gogolotget ggcgaacogt gagotomogg
                                                                                                                           360
gtototot occepted aggagatect etacceate acasagate acceasaget
ctgcqtccca ggcagaatgo ctaccgtgct gcagtgcgtg aacgtgtcgg tggtgtclqa
                                                                                                                           420
ngaggtotgo anteagotot atgaccogot gtaccaccoc ancetgttot gogooggegg
                                                                                                                           480
                                                                                                                           540
egggceagec capacogect cotgceacot pegageggg eeaggggagg gceggcgact
cagggeegge togagaegge agecageg ecacacegge cogcataged agetscaged
                                                                                                                           600
                                                                                                                           660
atggagagec ecenagggag ecagtgenaa ctagagageg eenctgageg &aacagegee
ateascaceg geetaaegag eagcasagga eqegagasac ageeacegac atqqggegqc
                                                                                                                           720
aqaaacacac acacataqaa atgcagttga cettecaaca gcatggggce tgayggcgt
                                                                                                                           780
                                                                                                                           840
qacctccacc caatagaaaa teetettata acttttgact ceecaaaaac etgactagaa
atagectact gttgacgggg agecttacca ataacataaa tagtegattt atgeatacgt
                                                                                                                           900
tttatgcatt catgatatac ctttgttgga attttttgat atttctaagc tacecagtte
                                                                                                                           960
gtotgtgaat tittitaaat tgitgcaact otootaaaat titticigaig tgittaitgs
                                                                                                                          1020
aaaaatccaa gtataagtgg acttgtgcat tcaaaccagg gttgttcaag ggtcaactgt
                                                                                                                          1080
gtacccagag ggaaacagtg acacagattc atagaggtga aacacgaaga gaaacaggaa
                                                                                                                          1140
aastcaagac totacaaaga ggotgggeag ggtggctcat gcotgtaato coagcacttt gggaggogag gcaggcagat cacttgaggt aaggagttca agaccagcot ggccaaaatg
                                                                                                                          1200
                                                                                                                          1260
gtgaaateet gtetgtaeta aaaatacaaa agttagetgg atatggtgge aggegeetgt
                                                                                                                          1320
                                                                                                                         1380
aatoccagot acttyggagg ctgaggcagg agaattgott gaatatggga ggcagaggtt
                                                                                                                         1440
gaagtgagtt gagatcacac cactatacte cagetgggge aacagagtaa gactetgtet
                                                                                                                         2459
caaaaaaaa aaaaaaaaa
          <210> 175
          <211> 1167
          <212> DNA
          <213> Homo sapien
          <220>
          <221> misc_feature
          <222> (1)...(1167)
          <223> n - A, T, C or G
          <400> 175
gegeageest ggeaggegge actggteatg gaaaacgaat tgttctgete gggegteetg
                                                                                                                             б0
gtgcatccgc agtgggtgct gtcagecgca cactgtttcc agaactccta caccatcggg
                                                                                                                           120
                                                                                                                           180
ctoqqcctqc acaetcttga ggccgaccaa gagccaggga gccagatggt ggaggccagc
etutocetac geomeccaça etacascaça etettectus etaaceacet catecteate
                                                                                                                           240
                                                                                                                           300
augulaçãos sateculate esastetac aceateegas gentengent trettegens
Executação contrato tigocloque totacetana atotacetace totaceta estacetace totaceta estaceta legatosta totaceta estaceta 
                                                                                                                           360
                                                                                                                           420
ctctatqecc cqctgtacca ccccagcetg ttctgcgccg gcqqagqqca egancageeq
                                                                                                                            480
gactoctgea acqqtgacto tqqqqqqqcc ctqatotqca acqqqtactt qcaqqqcctt
                                                                                                                           540
gtgtcttteg gaaaageece qtgtqgeeaa ettggegtge caqgtgteta caceaacete
                                                                                                                            600
                                                                                                                            660
tgcaaattca ctgagtggat agagaasacc gtccagncca gttaactctg gggactggga
accoatgasa tigaccocca satecatoct goggaangas ticaggasta totgitocca
                                                                                                                            720
                                                                                                                           780
geocetecte ceteaggeec aggagiceag geocecagee cetectecet casaccaagg
gtacagates coagecosts etcostoaga oceaggagts cagacosecs agecostent
                                                                                                                           840
                                                                                                                           900
contragace caggagtera geocetecte entragacge aggagterag accecccage
contented tragacrear gratgragge receasers tentrentes gagtragagg tragagreer caserreter treeragar reagagrant aggtreerage rectares
                                                                                                                           960
                                                                                                                          1020
tragarcrag regiterate coarctagan interesta caragigere estigigea
                                                                                                                         1080
ngttgaccca accttaccay ttggtttttc attttttgtc cctttcccct agatccagaa
                                                                                                                          1140
                                                                                                                          1167
atasagthta agagaagogo aaaaaaa
           <210> 176
           <211> 205
           <21.2> PRT
           <213> Homo sapien
           <220>
           <221> VARIANT
```

```
<222> (1)...(205)
       <223> Xaa = Any Amino Acid
       <400> 176
 Met Glu Asn Glu Leu Phe Cys Sor Gly Val Leu Val His Pro Gln Trp
                                       10
 Val leu Ser Ala Ala Ris Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu
              20
                                  25
 Gly Leu His Ser Leu Glu Ale Asp Gln Glo Pro Gly Ser Gln Met Val
                              40
                                                    45
 Glu Ala Ser Leu Ser Vol. Arg His Pro Glu Tyr Asn Arg Leu Leu Leu
     50
                          55
 Ala Ash Asp Leu Met Leu Ile Lys Leu Asp Glu Ser Val Ser Glu Ser
                      70
                                           75
 Asp Thr Ile Arg Ser Ile Ser Ile Ale Ser Gln Cys Pro Thr Ala Gly
                                       90
 Ash Ser Cys Leu Val Ser Gly Trp Gly Leu Leu Ala Ash Gly Arg Met
                                  105
                                                        110
 Pro Thr Val Leu His Cys Val Asn Val Ser Val Val Ser Glu Kaa Val
         115
                              120
                                                   125
 Cys Ser Lys Leu Tyr Asp Pro Leu Tyr His Pro Ser Met Phe Cys Ala
     130
                          135
 Gly Gly Gln Asp Gln Lys Asp Ser Cys Asn Gly Asp Ser Gly Gly
 145
                      150
                                           155
 Pro Leu Ile Cys Asn Gly Tyr Leu Glm Gly Leu Val Ser Phe Gly Lys
                                       170
                                                            1.75
. Ala Pro Cys Gly Glm Leu Gly Val Pro Gly Val Tyr Thr Asn Leu Cys
             180
                                  105
 Lys Phe Thr Glu Trp Ile Glu Lys Thr Val Gln Xaa Ser
                                                   205
       <210> 177
       <211> 1119
       <212> DNA
       <213> Homo sapien
       <400> 177
 gegeastege agesetggca ggeggeactg gteatggaaa aegaattgtt etgeteggge
                                                                           60
 greetggtge atcegeagtg ggtgetgtea geogeaeact gttteeaqaa electacaec atcgggetgg geotgeacag tettgaggee gaceagage cagggageea gatggtggag
                                                                          120
                                                                          180
 gocagoctot cogtacgoca cocagação aacagaccot toctogotaa coaceteato
                                                                          240
 ctoatcaagt tygacgaatc cytytocgag totgacacca kooggagcat cagcattyct
                                                                          300
 togoagtgoo ctaccgoggg gaactottgo otogtttotg gotggggtet gotggcgaac
                                                                          360
 gatgotgtga ttgocatoca gtoccayact gleggayect gegagtetga gaagetitte
                                                                          420
 caaccotage appointate catthropce actteragts caassacte ctscterate
                                                                          480
 ctoaclagat actoretect actoretace teaccogges cartatage aactagecag
                                                                          540
 caccatagtt otocquagic aquetatest gattactgtg ttgactgtgc tgtctattgt
                                                                          600
 acteaccate regatetta egigabatta eceteacite eccteacca tettegiate
                                                                          660
 cagtistect cactigating againteeing entragingto agreeations aretaintite
                                                                          720
 tgacctacag aggigagggs tcatatagct citcaaggat gciggtacte ecctcacaaa
                                                                          780
 ttcatttctc ctgttgtagt gaaaggtgcg coetctggag cotoccaggg tgggtgtgca
                                                                          840
 ggtcacaatg atgaatgtat gatcgtgttc ccattaceca aagcetttaa atcceteatq
                                                                          900
 ctcagtacac cagggcaggt ctagcatttc ttcatttagt gtatgctgtc cattcatgca
                                                                          960
 accacctcag gactcotgga ttototgcot agttgagete etgcatgetg ceteettggg
                                                                         1020
 gaggtgaggg agagggccca tggttcaatg ggatctgtgc agttgtaaca cattaggtgc
                                                                         1080
 ttaataaaca gaagotgtga tgttaaaaaa aaaaaaaaa
                                                                         1119
       <210> 178
```

<211> 164 <212> PRT

<213> Homo sapien

```
<220>
      <221> VARIANT
      <222> (1)...(164)
      <223> Xaa - Any Amino Acid
      <40D> 17B
Met Glu Asn Glu Leu Phe Cys Ser Gly Val Leu Val His Pro Gln Trp
                                                         15
                                     10
Val Leu Ser Ale Ala His Cys Phe Gln Asn Ser Tyr Thr Ile Gly Leu
                                                     30
            20
                                 25
Gly Lew His Ser Lew Glu Ala Asp Gln Glu Pro Gly Ser Gln Met Val
                                                 45
        35
                            40
Glu Ala Ser Leu Ser Val Arg His Pro Glu Tyr Aen Arg Pro Leu Leu
    50
                        55
Ala Asn Asp Leu Mat Leu Ile Lys Leu Asp Glu Ser Val Ser Glu Ser
                                         75
                    70
Asp Thr Ile Amg Ser Tie Ser Ile Ala Ser Glm Cys Pro Thr Ala Gly
                85
                                     90
Asn Ser Cys Leu Vel Ser Gly Trp Gly Leu Leu Ala Asn Asp Ala Val
                                 105
                                                     110
Ile Ala Ile Gin Ser Kaa Thr Val Gly Gly Trp Glu Cys Glu Lys Lou
                            12D
                                                 125
        115
Ser Gln Pro Trp Gln Gly Cys Thr Ile Ser Ala Thr Ser Ser Ala Arg
                        135
                                             140
Thr Ser Cys Cys Ile Leu Thr Gly Cys Ser Leu Leu Leu Thr Ala Ser
145
                    150
Pro Gly Thr Lev
      <210> 179
      <21.).> 250
      <212> DNA
      <213> Homo sepien
      <400> 179
ctgqagtqcc ttggtgtttc aaqcccctgc aggaagcaga atgcaccttc tgaggcacct
                                                                         60
ccagctgecc ceggeegggg gatgegagge teggageacc cttgecegge tgtgattget
                                                                        120
                                                                        180
gocaggiact gitcatoroa getititorigi contitigeto coggonagog citotigolas
                                                                        240
aagttoatat otggagootg atgtottaac gaataaaggt cocatgotoo woocgwaaaa
                                                                        250
aaaaaaaaa
      <210> 180
      <211> 202
      <212> DNA
      <213> Homo sapica
      <400> 180
actagteeng tgtggtggna ttecantigtg ttgggcccaa cacaatggct accittaaca
                                                                         60
traccrages ecogencety ecogtyces acgregates taxogaeagt atgatgetta
                                                                        120
ctctgctact cggaasctat ttttstgtas ttaatgtatg ctttcttgtt tataaatgcc
                                                                        180
                                                                        202
tgatttaaee aaaaaaaae aa
      <210> 181
      <211> 558
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(550)
      <223> n = A,T,C or G
```

```
<400> 181
tccytttgkt naggtttkkg agacamecek agacetwaan etgtgtcaca gaetteyngg
                                                                             60
astgittagg cagigotagi aatticytog taatgatict gitattacti tootnatiet
                                                                            120
ttattoctot ttottotgaa gattaatgaa gttgaaaatt gaggtggata aatacaaaaa
                                                                            1 B O
ggtegtgtge tegtateegt atcteegtge egatgeeagt gtgttateta tatecettee
                                                                            240
apattatgca agttagtaat tactcagggt taactagatt actttaatat gctgttgsac
                                                                            300
ctartctgtt cottggctag asassattat saacaggact ttgttagttt gggaagecaa
                                                                            360
attgataata tictaigiic taaaagiigg gotatacata aattattaag aaataiggaw
                                                                            420
tittaticce aggaztatgę kyttezitit atgaztatta esurgestag awętwiązgt
                                                                            480
assaycagtt tiggtwasta ygtwastatg tomtosatas acaskgotti gacttettic
                                                                            540
Caaaaaaa aaaaaaaa
                                                                            550
      <210> 182
      <211> 479
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(479)
      \langle 223 \rangle n = \Lambda, T, C or G
      <400> 182
acagggwttk grggatgcta agsccccrga rwtygtttga tocaacoctg gottwtttto
                                                                             60
agaggggasa atggggccta gaagttacag macatytagy tggtgcgmtg gcaccoctgg
                                                                            120
estences astrongert arriggrant energoneer entractions grangeouty
                                                                            180
timgcaatto acgittgccac ciccaacita aacattotic ataiqtgatg toottaqtoa
                                                                            240
ctaaggttaa actttcccac ccagaaaagg caacttagat aaaatuttag agtactttos tactmctcta agtcctcttc cagcctcact kkgagtcctm cytgggggtt qstaggaant
                                                                            300
                                                                            360
ntotottggc titotcaata eartototet yeatotoatg titeatitigg tacgcatere
                                                                            420
awigsigara aaattaaaat gitciggity mactitaaaa araaaaaaa aaaaaaaa
                                                                            479
      <210> 183
      <211>:384
      <212> DNA
      <213> Humo sapien
      <400> 183
aggogggagg agaagetasa gecasageee aagaagagtg geagtgeeag caetggtgee
                                                                             60
aglaccagia ccastaacag tgccagtgcc agtgccagea ccagtggtgg cttcagtgct
                                                                            120
getgecegee tgacegeese tetescattt gegetetteg etggeetteg tggagetggt geesgeacea gtggeagete tggtgeetgt ggttteteet acaagtgaga ttttagatat
                                                                            180
                                                                            240
tgttaatcct gccagtcttt ctcttcaagc cagggtgcat cctcagaaac ctactcaaca
                                                                            300
cagcacteta ggcagecact ateasteast toasettoac actotocatt aratetattt
                                                                            360
gccatttcaa aaaasaaaaa aaaa
                                                                            364
      <210> 184
      <211> 496
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> {1)...(496}
      <223> n = A, T, C or G
      <400> 184
accqaattyq quocgctggc ttataagcga tcatgtyynt corgtatkac ctcaacqaqc
                                                                             60
addinadalca equiciatecy ctgaagaaat ttgacccgat gggacaacag acctgctcag
                                                                            120
cocatoctac toggittetee coaquigaca astactotag acaceguate accateuaga
                                                                            180
macgettoss ggtgeteatg acceageac egegeeetgt cetetgaggg teepttaac
                                                                            240
Lyalgictit ictgccacci gitaccccic ggagactccg taaccaaaci citoggactg
                                                                            300
```

```
tragecetra treettitte coarcealar telitorest coarteice grareaste
                                                                                                                                                                      360
 attatgotto totoacoca toateotoococata aanooacac atticactit
                                                                                                                                                                      420
 tttttctcat attttaatt aclacmagaw taltwmagaw waaatgawtt qaaaaoctst
                                                                                                                                                                     480
 taaaaaaaa aaaaaa
                                                                                                                                                                      496
               <210> 185
               <211> 384
               <212> DNA
               <213> Homo sapien
               <400> 185
 qctggtagcc tatggcgkgg cccacggagg ggctcctgag gccacggrac agtgacttcc
                                                                                                                                                                       60
caughatery gegesgeque tretacegue cetacetgea gatetteggg cagatterre addadaseat gaacatade ereatgade acadeaacta Areatedad cecatactad acadeaacta Areatedad cecatactad acadeaacta Areatedad cecatactad acadeaacta Areatedad cecatactad acadeaacta Areatedad Areatedad
                                                                                                                                                                     120
                                                                                                                                                                     180
                                                                                                                                                                     240
 tggtgctgct cctcgtcatc ttcctgctcg tggccaacat cctgctggtc aacttgctca
                                                                                                                                                                     300
 ttgccatgtt cagttacaca ttcggcasag tacagggcaa cagcgatctc tactgggaag
                                                                                                                                                                     360
 gegeagegtt acegecteat eegg
                                                                                                                                                                     384
               <210> 186
               <211> 577
               <212> DNA
               <213> Nomo sapien
              <220>
               <221> misc_feature
              <222> (1)...(577)
<223> n - A,T,C or G
              <400> 186
gagttagete etecacaace ttgatgaggt egtetgeagt ggeetetege tteatacege
                                                                                                                                                                      60
thocatogto stactgtagg tttgccacca cytoctggca tottggggcg gontaatatt
                                                                                                                                                                     120
ccaggaaact ctcaatcaag tcaccgtcga tgaaacctgt qgqctqqttc tqtcttccqc
                                                                                                                                                                    180
toggfytgaa aggatotoco agaaggagty otogatotto cocacactit tgatgactit
                                                                                                                                                                    240
attgagtega ttetgeatgt ceageaggag gttgtaceag etetetgaea gtgaggteae eagecetate atgeegttga megtgeegaa gareaeegag eettgtgtgg gggkkgaagt eteaeeeaga ttetgeatta ceagagagee gtggeaaaag acattgaeaa aetegeeeag gtggaaaaag ameameteel ggargtgeta geegeteete gtemgttggt ggeagegetw
                                                                                                                                                                    300
                                                                                                                                                                    360
                                                                                                                                                                    420
                                                                                                                                                                    480
 tecttitigae acacaaacha gitaaaggea lilleaguee ceagaaanti gicateatee
                                                                                                                                                                    540
azgethtogo acagoactna topagliggg attaaat
                                                                                                                                                                    577
              <210> 187
              <211> 534
              <212> DNA
              <213> Homo sapien
              <220>
              <221> misc_feature
              <222> (1)... (534)
              <223> n = A.T.C or G
aacatottoo tgtataatgo tgtgtaatat ogatoogatn ttgtotgstg agastycatw
                                                                                                                                                                      ĸ۵
actinggaaaa gmaacattam agoctggaca ctggtattaa mattcacamt atgcaacact
                                                                                                                                                                    120
ttamacagtg tgtcaatct@ ctcccyynac tttgtcatca ccagtctggg aakaagggta
                                                                                                                                                                    180
tgooctatto acacototta asaggacqot aagcattttt gattoaacat otttttttt gacacaagto ogaasaaago asaaqtaasa agllatyaat ttgttagoos attoactto
                                                                                                                                                                    240
                                                                                                                                                                    300
ttoatgggac agagocatyt gattieseae gcaeettgca teatattgag cttygggagc tgataittga gcggaagagt agcctttcta cttcaccage caceaclocc tttcatattg
                                                                                                                                                                    360
                                                                                                                                                                    420
pgatgttnac naaagtwatg tetetwacag atgggatget tttgtggcaa ttclqttetg
                                                                                                                                                                    480
aggéfelece agrifettia coactigese aagaaggest titetteete agge
                                                                                                                                                                    534
```

```
<210> 188
       <211> 761
       <212> DNA
       <213> Homo mapien
       <220>
       <221> misc feature
       <222> {1}....(761)
       <223> n - A, T, C or G
       <400> 188
agaaaccagt atototnaaa acaacctoto ataccttgtg gacctaattt tgtqtgcgtg
tgtgtgtgcg cgcatattat atagacaggo acatcttttt tacttttgta aaagcttatg
                                                                             60
                                                                            120
cetettiggt atetatet gigaaagitt taatgatetg cealaatgie tigggeeet tigtettetg igtaaatggi actagagaaa acacetaint tatgagicaa tetagitngi
                                                                            180
                                                                            240
tttattegae atgaaggaau ttteeagatn acaacactna caaactetee cikgaekarg
                                                                            300
ggggacaaag aaaagcaaaa ctgamcataa raaacaatwa cctggtgaga arttgcataa
                                                                            360
aCagamatwr gytagtetat tgaminacog cotcattede rmgtrwiktr witciccort
                                                                            420
gcanaanca tgtacngact toccuttgag Laatgccaag ttgttttttt tatnataaaa
                                                                            480
cttquuctto attauatqtt thaaagtggt gtqqtgqgcc asaatattqa astqatggaa
                                                                            ፍልሰ
ctgactgate aagotgtace saleageagt gtgcctaeca agceecacag taatgttgac
                                                                            600
atgottaatt cacasatgot satttontta taeatgtttg ctaeaataca ctttgaacta
                                                                            660
tttttclgtn tloccapac tgagatotta gattttatgt agtatoaagt gaaaaantac
                                                                            720
Qaaealasta ecattgaage eessnenaaa aaanaaaaaa a
                                                                            761
      <210> 189
      <211> 482
      <212> UNA
       <213> Homo sapien
      <220>
      <221> misc_fcature
      <222> (1)...(402)
      <223> n = A_1T_1C or G
      <400> 189
Uttittitt titgccgain ctactattit attgeaggan giggggggtgt atgcacegea
                                                                             60
caccqqggct atmageagca aqaaggaagg agggagggca cagcccttg ctgagcaaca
                                                                            120
eagccqcctq ctgccttctc tqtctgtctc ctggtgcagg cacatgggga gaccttcccc
                                                                            180
aaggcagggg ccaccagtcc aggggtggga atacaggggg tgggangtgt gcataagaag
                                                                            240
tgataggcac aggccacccg gtacagaccc ctcggctect gacagginga ittcgaccag
                                                                            300
gtcattgtgc cotgoccagg cacagogtan atotggaaaa gacagaatgc tttccttttc
                                                                            360
azatttggct ngtcatngaa ngggcanttt tccaanttng gctnggtctt ggtzcncttg
                                                                            420
gttcggccca getccnegtc casaaantat tcacccnnet conaattgct tgenggnece
                                                                            48D
CC
                                                                            482
      <210> 190
      <211> 471
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(471)
      <223> n - A,T,C or G
      <400> 190
ttttttttt ttttaaaaca gtttttcaca acaaaattta ttagaagaat agtggtttg
                                                                            60
assauctoreg catecagtya gasctaccat acaccapatt acagetngga atgrneteca
                                                                           120
astgretggr caaatgatac aatggaacca tteaatetta cacatgeacg aaagaacaag
                                                                           180
cgcttttgac atacaatgca casaaaaasa aggggggggg gaccacatgg attaaaattt
                                                                           240
taagtactca tcacatacat taagacacag ttotagtuca gtonaaaato agaactgont
                                                                           300
```

```
tgamaamttt catgtatgca atcceaccaa agaacttnat tggtgatcat gantnotota
                                                                                360
ctacatchac cttgatcatt gecaggaach asaagtthsa ancachchgt acasaaanaa
                                                                                420
                                                                                471
tototaattn anticaacct cogtecngsa asatntinni talacactcc c
       <210> 191
       <21.1> 402
       <212> DNA
      <213> Homo sapien
       <220>
       <221> misc feature
       <222> (1)...(402)
       \langle 223 \rangle n = A,T,C or G
       <400> 191
gagggattga aggtotgtto tastgtoggm otgttoagoo accazotota acaaqttgot
                                                                                 бО
gtottceact cactgtotgt aagottttta accoagacwg tatottcala aatagaacaa attottcacc agteacatet totaggacot tittggatto agttagtata agottottoca citcottigt taagacitea totggtamag tottaagtit lqlagaaagg aattyaatig
                                                                                120
                                                                                180
                                                                                240
                                                                                300
ctogttetet aacaatgtee teteettgaa gtatttyget gaacaaccea cetaaagtee
                                                                                360
cttigtgcat ccattitaaa tatacttaat agggcaltigk incactaggt taaattctgc
                                                                                402
aagagteate tgtetgeaaa agttgegtta gtatatetge ca
       <210> 192
       <211> 601
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(601)
       <223> n - A,T,C or G
       <400> 192
gageteggat ecaataatet ttgtetgang geageacaea Laineagtge catggmaact
                                                                                 60
ggtetacecc acatgggage aguatgeugt agniatatas ggicattecc tgagicagae
                                                                                120
atgeytyttt gaytaccotq tqccaaqtqc tqgtgaltct yaacacacyt ccatcccqyt
                                                                                180
ettttgtgga aanactggca tttktctgga actagcarga catcacttac aaattcaccc
                                                                                240
acquigacact tgaaaggigt secsaagega ytettgeatt getttttgte esteeggeac
                                                                                300
                                                                                360
captintosa tactascocy ctggtttgcc tocatcacat ttgtgatotg tagototyga
teceteteet gacagtactg aagmacttet tettttgttt caamageare tettggtgee
                                                                                420
tgliggalca ggttcccatt tcccagtcyg aatgttcaca tggcatattt wacttcccac
                                                                                480
asascattgc gatttgaggc teagcaacag casatectgt teeggcattg getgcaagag
                                                                                540
entegatgta geoggerage georaaggeag gegeogtgag ceccaccage ageagaayea
                                                                                600
                                                                                601
       <210> 193
       <211> 608
       <212> DNA
       <213> Homo sapion
       <220>
       <221> misc feature
       <222> {1}...(608)
       <223> n = h, T, C or G
       <400> 193
atacagecca natuecacca cgaagatgcg chiqitgaci gagaacciga igeggicaci
                                                                                 60
ggtcccgctg tagacccago gactetccar ctgctggaag cggttgatgc tgcactcytt
                                                                                120
                                                                                180
cocaacqcaq gcaqmagrqg gaccqgtcaa tgaactccay tcgtggcttg gggtkgacgg
tkmagtgeng gaagaggetg accaectege ggtecaecag gatgeecgae tgtgegggae etgeagagaa acteetegat ggteatgage gggaagegaa tgaggeecag ggeettgeee
                                                                                240
                                                                                300
```

```
agaspottoe gootgitoto tggogtoaco tgoagotgot googotgaca otoggootog
                                                                            360
gaccagegga caaaoggest tgaacageeg caccteacgg atgeceagtg tgtegegete
                                                                            120
caggammqse accadegigt coaggicaat gloggigaag coolcogogg giretgggt
                                                                            480
ctgcagtgtt titgtogatg ttotocoaggo acaggotggo cagotgcggc tcatcgaaga
                                                                            540
gtogogody ogtgagoago atgaaggogt tylóggológ captlótfót tcaggaacic
                                                                            600
cacgoaat
                                                                            608
       <210> 194
       <211> 392
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (392)
       \langle 223 \rangle n = A, T, C or G
       <400> 194
geacqqctgg accttgcctc qcattgtqct tqctgqcagg qaataccttg gcaagcagyt
                                                                            60
coagteegag cageeceaga eegetgeege eegaagetaa geetgeetet ggeetteece
                                                                           120
tecgeeteas tgcagaacca gtagtgggag cactgtgttt agagttaaga gtgaaczetg
                                                                           180
tttgatttta cttgggaatt tcctctgtta tatagctttt cccaetgcta atttccauac
                                                                           240
aacaacaaca aaataacatg titgcctgtt aagttgtata aaagtaggtg attctgtatt
                                                                           300
taaagaaaat attactgtta catatactgc ttgcaatttc tgtatttatt gktnctstgg
                                                                           360
aaataaatat agttattaaa ggttgtcant cc
                                                                           392
       <210> 195
       <211> 502
       <212> DNA
       <213> Homo capien
       <220>
      <221> misc feature
       <222> (1)...(502)
       <223> n - A, T, C or G
      <400> 195
ccettkgagg ggtkaggkyc cagttyccga gtggaagaaa caggccaggo qaaqtgcqtg
degagetgag geagatgite ecacagigae ecceagages siggostata qiytetgace
                                                                           120
cotoncaagg aaagaccacs ttotggggac atgggologa gggcaggeco lagaggcaco
                                                                           180
aagggaaggc cccattccgg ggstgttccc cqsggaggas gggaaggggc tctgtgtgcc ccccasgagg aagaggccct gagtcctggg atcagacacc ccttcacgtg tatcccaca
                                                                           240
                                                                           300
casatgesay of coccases tecceletes greecetter statement among coact
                                                                           360
gacscacace catedague aegecated ceetggggar tgtgctcaag gartegengg
                                                                           420
gcarcqtqga cototogloc caqaaqgggq caqaatctcc aatagangga ctgarcmatt
                                                                           480
дстлинавав веевальная ве
                                                                           502
      <210> 196
      <211> 665
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(665)
      \langle 223 \rangle n - A.T.C or G
      <400> 196
ggttacttgg tttcattgcc accacttagi ggatgtcall tagaaccatt ligictgctc
                                                                            60
octotygaag cottycgcag agoggacttt otaattytty gagaataact gotgaattt
                                                                           120
wagetgtttk gagttgatts geaccoetge acceecaset teastatgaa aacyawttga
                                                                           180
actwatttat tatottgtga acceptatese eatgaeaatt tigitoatae igiatikato
                                                                          210
```

```
aagtatgatg aasagcaswa gafatatatt cttttattat gttasattat gattgocatt
                                                                           300 .
attaatoggo aasatgtgga gtgtatgtto ttttoacagt aatatatgco ttttgtaact
                                                                           360
teactingtt attitutigt aaatgarita caaastictt aattiaagar aatggtaigt
                                                                           420
watatttatt toattaattt otttootkot ttaoqtwaat tttgaaaaga wtgoatgatt
                                                                           480
tettgacaga aategatett gatgetgtgg aagtagtttg acceacatee ctatgagttt
                                                                           540
ttottagaat gtataaaggt tgtagoocat onaacttoaa agaaaaaaat gaccacatac
                                                                           600
                                                                           660
tttgcaatca ggctgaaatg tggcatgctn ttctaattcc aactttataa actagcaaan
aagtg
                                                                           665
      <210> 197
      <211> 492
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (492)
      <223> n - A, T, C or G
      <400> 197
ttttnttLLt tttftttgc aggaaggatt ccatttattg tggatgcatt ttcacaatat
                                                                            60
                                                                           120
atgtttattg gagcgateca ttatcagtga aaagtatcaa gtgtttataa natttttagg
aaggragati cacagaacat gcingtongo tigoagtitt acctogtana gainacagag
                                                                           180
aattatagto naaccagtas acnaggaatt tacttitoaa sagattaaat cosaactgaa casaattota cootgaaact tactocatoo aaatattgga atsanagtos gosgtgatao
                                                                           24 D
                                                                           30D
attotottot gaacittaga tittotagaa aaatatgisa tagigaicag gaagagotot
                                                                          36D
tgttcaaaag tacaacnaag caatgtteec ttaccatagg cettaattea aactttgate
                                                                           420
cattteacte ceatcacggg. agtcaatget acctgggaca cttgtatttt gtteatnetg
                                                                           480
                                                                           492
ancatggett aa
      <210> 198
      <21.1> 478
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(478)
      \langle 223 \rangle n = A,T,C or G
      <400> 198
tttnttttgn attfcantet gtannaanta tttfcattat gtttattana aaaatatnaa
                                                                           60
                                                                          120
tgtntccacn aceastcatn ttacntnagt aagaggccan ctacattgta caacatacac
                                                                          180
tgagtatatt ttgammagga caagtttaaa gtamacneat attgeegame atameaeatt
                                                                          240
tatacetygo tiguttyeta titagosceg cenassolga ytgayttaco agazemsasi
natatatoto autompatti aagatacaaa acagatoota logiavatam catoniquas
                                                                          300
gagttgtggc Litalgttta ctgaaagtca atgcagttoc tgtacaaaga galggccgta
                                                                          360
                                                                          420
ageattelag taccietael ceatggttaa gaatrgtaca ettalettta catalginea
ggqtwaqaat tgtqLtaagt maanttatgg agaggtccan gagaaaaalt tgatncaa
                                                                          478
      <210> 199
      <211> 482
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1)...(4B2)
      <223> n = A, T, C or G
                                                                           60
```

agtgacttgt cotocaacaa maccouttga toaagtttgt ggcactgaca atcagaccta

```
toctagttcc tgtcatctat tcgctactaa atgcagactg gaggggacca aaaaggggca
                                                                          120
toactccag ctggattatt ttggagcctg casatctatt cctacttgta cggactttga .
                                                                          180
agtgaticag titiccictac ggatgagaga ciggcicaeg aatatccice tgcegctita
                                                                          240
tqeeqccnac tctgsacacq ctgqttatct nagatgagaa ncagagaaat asaqtcnaga
                                                                          300
assittacct ggangaaasq aggettingq cigqqqacca teccatigas cettetetta angqaettia agaanaaact accacatgin igingtatee tqqtqeenqq ceqtitantq
                                                                          360
                                                                          420
sachingaen neaccotint ggastanant citiquengen tectquacti getectetge
                                                                          480
98
                                                                          482
      <210> 200
      <211> 270
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(270)
      <223> n = A, T, C or G
      <400> 200
eggeegeaag tgeaacteea getggggeeg tgeqgaegaa gattetgeea geagttggte
                                                                           60
cyactgogac gacggoggog gogacagtog caggtgoago gogggogcot gyggtottgo
                                                                          120
adopoteago tgacococca gaggtostst cacotoccac gacottgaco cogtogogo
                                                                          180
cagooggaac agaqoooggt gaanqoogga ggootoggga aqooootogg gaaqqqoogo
                                                                          240
coccepagata cocceptions gotogococc
                                                                          270
      <210> 201
      <211> 419
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (419)
      <223> n = A, T, C or G
      <400> 201.
ttttttttt ttttggsatc tectgcgagc anagcagglc agcaacaagt ttattttgca
                                                                           60
getageaagg tascagggta gggestggtt acatgtteag gteasettee tttgleglag
                                                                          120
ttgattggtt tgtctttatg ggggcggggt ggggtagggg aasnegaage snaantaece
                                                                          180
tggagtgggt gcaccotccc tgtagaacct ggttacnaas gcttggggcs gttcscctgg
                                                                          240
totgtgacog toattitott gacatoaatg ttattagaag toaggatato tittagagag
                                                                          300
tocactgint otggagggag attagggitt ottgocaana tocaancaaa atcozoniga
                                                                         360
aaaagttgga tgatncangt acngaatacc ganggcatan ttctcatant cggtggcca
                                                                          119
      <210> 202
      <211> 509
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (509)
      <223> p = A,T,C or G
      <400> 202
ttenttttt tttttttt ttttttttt tttttttt tteLettttt teeletttt
                                                                          60
togoactiaa tocattitta titicaaaatg totacaaant tinaatnene cattataene
                                                                         120
ginatiting assaictass ontiaticas aintnagens sententise nessatones
                                                                         180
tacmenessa astessassi stachinici ticagessae tingitaesi sastisassa
                                                                         240
aatatatacg gotggtgttt toaaagtaca attatottaa cactgcaaac atntttnnaa
                                                                         300
ggsactassa taasaasaaa cactnccgca aaggttasag ggaacaacaa attentttta
                                                                         360
```

```
cascanonno nattatassa atcatatoto sastottago ggastatata ottoscaong
                                                                                  420
ggatottako tittaotnok ottligittat iittitanka ocelliginii, gggccckeck
                                                                                  4 B O
castggnaat necneenene tggactagt
                                                                                  509
       <210> 203
       <211> 583
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (583)
       \langle 223 \rangle n - A, T, C or G
       <400> 203
ttilttttt ttitttga coccetcti ataaaaaaca agttaccatt ttattttact
                                                                                   60
                                                                                  120
tacacatatt tattttataa ttqqtattaq atattcaaaa qqcaqctttt aaaatcaaac
                                                                                  180
taaatggaaa ctgccttaga tacataattc ttaggaatta gcttaaaatc tgcctaaagt
gammatette tetagetett tigaetytaa attittgaet ettytaaaac atecamette attittetig tetitaaaat tatetaatet tteeattitt teeetattee aayteaatti gettetetag ceteatitee tagetettat etaetattag taagigget titteetaaa agggammaatggemeen aanemmeen titatattea tatitetaee
                                                                                  240
                                                                                  300
                                                                                  360
                                                                                  420
tacettaata aaatageatt ttetgaagee ageteaaaag aaggettaga teettttatg
                                                                                  480
tocattttag toactaaacg atatonasag tgocagaatg caaaaggtit gtgaacalli
                                                                                  540
                                                                                  583
atteasaage tastataaga tatttesest setesieitt etg
       <210> 204
       <211> 589
<212> DNA
       <213> Nomo sapien
      <220>
       <221> misc feature
      .<222> (1)...(5B9)
       \langle 223 \rangle n = A, T, C or G
       <400> 204
tttttttt ttttttt ttttttnoto ttcttttt ttganaatga ggatogagtt
                                                                                   60
                                                                                  120
ttteaetete tagatagage atquagadda elealeitte cagetttada alaacaatea
                                                                                  180
aatotottat gotatetoat atilioagik aaactaatga gicactggot tatottotoo
tgaaggaaat ctgticatic ttctcatica tatagtiata tcaagtacta ccttgcatat tgagagglii tlottctcta tttacacata tattccatg tgaattigta tcaaaccttt
                                                                                  240
                                                                                  300
atilication assetagese steatginti cittiquate agegeogege accetaines
                                                                                  360
cattaccaaaa ctgctcaaat tgtttgttaa gnttatccat tataattagt tnggcaggag
                                                                                  420
                                                                                  480
ctaatecaaa tcacetttac ngacnagcaa taataaaact qaagtaccag ttaaatatcc
                                                                                  540
saasteatta aaggeacatt tttagcctgg gtataattag ctaattcact ttacaagcat
ttattnagaa tgaattcaca tgttattatt contagooca acacaatgg
                                                                                  589
       <210> 205
       <211> 545
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1) ... (545)
       <223> n = A, T, C or C
       <400> 205
                                                                                  60
tittntttt litticagt satoatcaga arsatatita titttalatt tessallicat
agazuagtgo ottacattte atamangttt glütotomaa gigatoogag gaattageta
                                                                                  120
ingtotiqua cocceatati settigagga asetacecca aastacetta agiasettat
                                                                                  180
```

```
ttaagatoat agagottyta aytyamaga taaaatttya cotcagasao totgagostt
                                                                        240
așaaatecae tattageaaa taaattaeta tygacttett gettteattt tgtgatgaat
                                                                        300
atggggtgte actggtaame camemente tomaggetse attacttegt gatagattet
                                                                        360
tetgtactit gctanatnac gtggatatga gttgaceagt ttctctttct tcastctttt
                                                                        420
asgygycnya nyaaatyayy aayaaaayaa aaysattacy catactytto titotaingy
                                                                        480
aaggattaga tatgtttoot tteocaatai taasaasala atsatgttta otactagtga
                                                                        540
33000
                                                                        545
      <210> 206
      <211> 487
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(487)
      \langle 223 \rangle n = A,T,C or G
      <400> 206
tttttttttt ttttttagtc aagtttotna tttttattat aattæaagtc ttggtoattt
                                                                         60
catttattag ctctgcaact tacatattta aattaeegae acgttnttag acaactgtna
                                                                        120
castitataa atgisaggig coattatiga gianatatat tootoosaga qiggatgigt
                                                                        160
coeffecc accasetaat gaancageaa cattagttta attttattag tagalnatae
                                                                        240
actgotgoaa acgotaatto tottotooat coccatgtag atattglgta latgtgtgag
                                                                        300
                                                                        360
tigginagaa igcatcanca atcinacaat caacagcaag aiqaagctag gcnigggcti
toggtgaaaa tagactgtgt ctgtctgaat caaatgatct gacctatoct cggtggcaag
                                                                        420
aactottoga accepttoot caaaggongo teccacatil etegentoto tigosotigi
                                                                        480
                                                                        487
ttcaaaa
      <210> 207
      <211> 332
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> {1}...(332)
      <223> n = A,T,C or G
      <400> 207
                                                                         60
tgaattggot aaaagactgo etttitanaa otegoeacto ttatttottt ootttaaaaa
tacatagcat tacatoccas atcotettia segacotgac agottgagaa ggicactact
                                                                        120
                                                                        180
goatttatog gacottotgg tggttotgct gttacntttg aantetgaca atcottgana
atcitiqcet gesqeggagg teasaggtat tqqattttca caqaggasna acscaqcqca
                                                                        240
                                                                        300
gasatqaaqq ggccaqgctt actgaqcttq tocactqgaq ggctcatggq tgggacatgg
                                                                        332
assageagge agectaggee etggggagee ca
      <210> 20B
      <211> 524
      <212> DNA
      <213> Home sapien
      <220>
      <221> misc feature
      <222> (1)...(524)
      <223> n = A, T, C \text{ or } G
      <400> 208
agggogtggt goggagggcg ttectqlttl ctctcagtaa caataaatac aeeaagactg
                                                                         60
gttgtgttcc qqccccetcc saccacqeag ttgatttctc ttgtgtgcag agtgactgst
                                                                        120
tttaangqac attgaggttg teacastgte acaatgteac agtgtgaagg geacacteac
                                                                        180
toccycqlqa ((cacattta gcaaccasca stagotcatg agtocatact tgtaaatact
                                                                        240
```

```
tttggcagaa tacttnttga aacttgcaga.tgataactaa gatccaagat atttcccaaa
                                                                         300
qtaaatagaa qtqqqtcata atattaatta cctqttcoca tcaqcttcca tttacaagtc
                                                                         360
atgageccaç acactgacat caaactaage ccaettagae teetcaccae cagtetçtee
                                                                         420
tgicateaga caggaggety teacettgae coosttelea ceagtesate stetsteesa
                                                                         480
asaccattac orgaticant teoggraphs of caccacette giga
                                                                         524
      <210> 209
      <211> 159
      <212> DNA
      <213> Homo sapien
      <400> 209
ggolgaggea atccagagtt gccatggega easttccagt gtcegceltc ttgctcctto
                                                                          60
tggcccicte ctacactety gecagagata ccacagteaa acetggagee aaaaaggaca
                                                                        120
cassggacto togacocaaa otgococaga coctotoca
                                                                        159
      <210> 210
      <211> 256
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(256)
      <223> n = A, T, C or G
      <400> 210
actocotogo agacaaaqqo agaqqagaqa qototqttaq tlotqtqttq ttgaactqoo
                                                                         60
actgaellic tttccecttq qectettaca tqccanttqa ggyactaatq gadaaacqta
                                                                        120
                                                                        180
tigcagggtg naaatgggan ggctggtttg ttanatgaac agggacatag gaggtaggca
                                                                        240
                                                                        256
ccaggatgct aaatca
      <210> 211
      <211> 264
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_fcature
      <222> (1)...(264)
      <223> n = A,T,C or G
      <400> 211
acattqtttt tttqaqataa aqcattqaqa qaqctctcct taacqtqaca caatqqaaqq
                                                                         60
                                                                        120
actggaacac atacccacat ctttgttctg agggataatt ttctgataes gtcttgctgt
atattoaago acatatgita tatattatto agittocatgi tiatagocta gittaagqaga
                                                                        180
ggqqagatac attongaaag aggactgaaa gaaatactca agtnggaaaa cagaaaaaga
                                                                        240
aaaaaaggag caaatgagaa goot
                                                                        264
      <210> 212
      <211> 328
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (328)
      <223> n = A, T, C or G
      <400> 212
accepases: creatgoigs stattinger testiation consitetti galtqleass
                                                                         60
```

```
ggatttaatg ttgtctcage ttgggcactt cagttaggac ctaaggatge cageeggcag
                                                                           120
gtttatatat geageaacaa tatteaageg egacaacagg ttattgaact tgeoegecag
                                                                           180
tinaatitea tieccatiga ettiqqqatee tiateateaq eeaqaqaqat tqaaaatita
                                                                           240
cooctacnee totttactot otgganaggg coagtggtgg tagotataag ottggooaca
                                                                           300
ttttttttc ctttattcct ttgtcaga
                                                                           328
      <210> 213
      <211> 250
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1),, (250)
      <223> n - A,T,C or G
      <400> 213
acttatgage agagegaeat atconagtgt agactgaata aaactgaatt eteteragtt
                                                                            60
tabagcattg ctcactgaag ggatagaagt qactgccagg agggaaagta agccaeggct
                                                                           120
Cattatgcca aaggamatat acatttcaat tetecaaact tetteeteat teesagagtt
                                                                           180
ttcaatattt gcatgaacct gctgataanc catgttaana aacaaatstc tetctnacct
                                                                           240
tctcatcqqt
                                                                          250
      <210> 214
      <211> 444
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(444)
      <223> n - A, T, C or G
accoagaato caatgotgaa tatttggott cattattooc agattotttg attgtcaaag
                                                                            60
gatttaatgt tgtctcagct tgggcacttc agttaggacc taaggatgcc ageoggcagg
                                                                          120
tttatataty caycaacaat atteaagege gacaacaggt tattgaactt geoegecagt tgaattteat teccattgae ttgggateet tateateage canagagatt gaaaatttae
                                                                          180
                                                                          240
coctacgact ctttactotc tygagagggc cagtggtggt agctataagc ttggccacat
                                                                          300
tttttttcc tttattcctt tgtcagagat gcgattcatc catatgctan aaaccaacag
                                                                          360
agtgactttt acaaaattcc tataganatt gtgaataaaa cottacctat agttgccatt
                                                                          420
actitiquetet coctaatata cete
                                                                          444
      <210> 21.5
      <211> 366
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1) ... (366)
      \langle 223 \rangle n - A.T.C or G
      <400> 215
acttatgago agagogacat atocaagtgt anactgaata aaactgaatt ototocagtt
                                                                           6B
taaagcattg ctcactgaag ggatagaagt gactgccagg agggaaagta agccaaggct
                                                                          120
cattatgoca aagganatat acatttcaat totocaaact tottootoat tocaaqagtt
                                                                          180
ttcaatattt gcatgaacct gctgataagc catgttgaga aacaaatatc tctctgacct
                                                                          240
                                                                          300
totoatoggt aagcagaggo tgtaggosac atggaccata gogaanaaaa aacttagtaa
tocaagotgt tttctacact gtaaccaggt ttccaaccaa ggtggaaate toctataett
                                                                          360
ggtgcc
                                                                          366
```

```
<210> 216
      <211> 260
      <212> DNA
      <213> Nomo sapien
      <220>
      <221> misc_feature
      <222> (1)... (260)
      <223> n = A,T,C or G
      <400> 216
etgtataase agaacteese tgcangaggg agggeeggye caggagaate teegettigte
                                                                             60
caugacungg goctanggan gatotocaca ctacinntaa geactnithe ettittiat
                                                                            120
tastaaaaay tomaaaaaggo ofottoloaa otittettooo tinggomgga aaatttaaaa
                                                                            180
alcomments technocit atempetat cataletacs attacetgas management
                                                                            240
aattolicct tecetectit
                                                                            260
      <210> 217
      <211> 262
      <212> DNA
      <213> Homo gapien
      <220>
      <221> misc feature
      <222> (1) ... {262}
      \langle 223 \rangle n - A,T,C or G
      <400> 217
acctacgtgg gtaagtttan aaatgttata atttcaggaa naggaacgca tataattgta
                                                                             бП
tettyeetot auttitetat tittaataagg aaatogemma tiggggtggg gggaalghag ggcettetac agtilgagca aaatgeaatt amaigtggaa ggacageact gaamaattit
                                                                            120
                                                                           1B0
atgastaato tgtatgatte tetgintote gegtagetti afeattegon antiaccota
                                                                           240
atateettes tgettgtssa gt
                                                                           262
      <210> 218
      <211> 205
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1).T.(205)
      <223> n = A, T, C or G
      <400> 218
accaaggigg typatlaceg caaniggate aangacacea legiggedaa coopigagea
                                                                            60
coccletces ctoccetttg tegiseectt ggescotteg assigecceg gccasgacto
                                                                           120
aggesters agticlasty accititates blangintna nglesagget igstaggaaa
                                                                           180
                                                                           205
enasatcago agecacaggt gtaes
      <210> 219
      <211> 114
      <212> DNA
      <213> Homo sapien
      <400> 219
tactgttttg tctcagtaac aataaataca aaaagactgg ttgtgttccg gccccatcca
                                                                            бŊ
accacgaagt tgatttetet tgtgtgeaga gtgactgatt ttaaaggaca tgga
                                                                           114
      <210> 220
      <211> 93
      <212> DNA
```

```
<213> Homo sapien
       <400> 220
actagocago acakaaggoa gggtagoottg aattgottto tgototttac atttolitta
                                                                             60
asstangest tragtgetes greectacto agt
                                                                             93
       <210> 221
       <211> 167
       <212> DNA
       <213> Homo sapien
      <2220>
       <221> misc_feature
      <222> {1}...(167)
      \langle 223 \rangle n = A, T, C or G
      <400> 221
actangigea ggigegeaca aatattigie gatatteeet teatetigga tiecatgagg
                                                                            60
tettitgece agestytygs tetactytag taagtitety etgatyagga gecagnatys
                                                                           120
cerceactae ettecetgae getececana aateacecaa cetetgt
                                                                           167
       <210> 222
      <211> 351
      <212> DNA
      <213> Homo sapien
      <400> 222
agggogtggt goggagggog gtactgacut cattagtagg aggatgcatt ctggcacccc
                                                                            60
gttetteace tgteeccess teettaassg geestactge stassgtess caseagetas
                                                                           120
atgittgetg maitaaagga tggatgaaaa aaattaataa Egaallittg cataatccaa
                                                                           180
thttctcttt tatatttcta gaagaagttt ctttgagcct attagatccc gggaatcttt
                                                                           240
taggtgagca tgattagaga gcttgtaggt tgcttttaca tataictggc atatttgagt
                                                                           300
ctcqtatcaa aacaatagat tggtaaaggt ggtattattg tattgataag t
                                                                           351
      <210> 223
      <211> 383
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(303)
      <223> n = A,T,C or G
      <400> 223
azaacaaaca aacaaaaaa acaattctto attragaaaa attatottag ggactgatat
                                                                            60
tygtealliet ggtcaattta atwrtrttkt ggggcatttc cttacattgt cttgecaaga
                                                                           120
ttammetgtc tgtgccaasa ttttgtattt tatttggaga cttcttatca anagtaatgc
                                                                           180
lgccaaagga agtctaagga attagtagtg tteccmtcac ttgtttggag tgtgctattc
                                                                           240
teasagattt tgatttcctg gaatgacast tatattttas ctttggtggg ggasanagtt ataggaccac agtcttcact totgatactt gtasattaat cttttattge acttgttttg
                                                                           300
                                                                           36D
eccattaagc tatatgttta aaa
                                                                           383
      <210> 224
      <211> 320
      <212> DNA
      <213> Homo sapien
      <40D> 224
cccctgaagg cttcttgtta gabaatagta cagttacaac cantaggaac sacaabaaga
                                                                            60
aasagttigt gacattgtag tagggagigt gtacccctta ctccccatca aaaaaaaaaa
                                                                           120
ggatacatgg ttaaaggata raaqggcaat atiliatcat atgitetaaa agagaaggaa
                                                                           180
```

gagaaaatac tacttteter aaatgg aaatgtggee gteeateete etttar tttaraetem geattgtgae	aagc oottaaaggt agtt goatgacttg	gctttgatæc gacacggtaa	tgaaggacac ctgttgcagt	240 300 320
<210> 225 <211> 1214 <212> DNA <213> Romo sapien				
<400> 225 gaggactgca gccccactc gcagcc ttctgctcgg gcgtcctggt gcatcc	ctqq caqqcgqcac qcaq tqqqtqctqt	tggtcatgga cagcgcaca	asacgasttq ctqtttccsq	60 1.20
asctnotaca coateggget gggeot cagatggtgg aggeoagoot ctoogt	gcac agtcttgagg acgg cacccagagt	ccgaccaaga ccaacagacc	gccagggagc cttgctcgct	180 240
ascquected typicates gityga atcageatty citegragity coctae	cgaa teegtgteeg cgeg gggaactett	agtetgaeac geetegttte	cateeggage tggetggggt	300 360
ctgcťggcga acggcagaať gcctac gaggaggtct gcagtaagct ctatga	cgtg ctgcagtgcg	tgaacgtgtc	ggtggtgtct	420 480
ggagggcaag accagaagga ctootg	caac ggtgactetg	gggggcccct	gatotgcaac	540 600
gggtacttgc agggcottgt gtottt ggtgtctaca ccaecctctg cabatt	cact gagtggatag	agaaaaccgt	ccaggccagt	660
taactotggg gactgggaac coatga caggaatato tgtteboage costoo				720 780
tectecetea waccaagggt acagat gaccecccag ecectectee etcaga	cccc agcccctcct	ccctczgacc	caggagtcca	940 900
gagtecagae coeccagece cteete	cctu agacccaggg	gtecaggees	ccaacccctc	960 1020
ctocctoaga ctoagaqqte caageu gtoccaqcoc ctoctocctc agacec	ageg qtecaatgee	enntagacto	tecceqtaca	1080
captococo tigigoseg ilgaco titococtag alocagassi essgio				1740 1200
aaaaaaaa <b>asaa</b>				1214
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· <213> Homo sapien				
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agaacólegő céagtcatáa téátto	etcn kgačagtýgo	aat:aatcacg	steaccegt	119
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aattttcctc ctctggagga aaggtg	gtga ttgacaggca	gggagacagt	gacaaggeta	240
gagaaageea egeteggeet tetetg gettgteese ttecaateag ceaste	aacc aggatggaac ctga gaacccccat	ggcagaecce ctaacttect	tgaaaacgaa actggaaaag	300 360
agggeeteet caggageagt ceaaga ggaaagggtg cacceteage agagaa	gttt tcaaagataa	cgtgacaact	accatctaga	420 480
acctectore totattggga tocque	cago utttgagagg	ccactacccc	atgaacttct	540
gecatecact ggacatgaag etgagg gacaggetet gecetemage eggetg	acen toggettesa soon espesseese	contgagitg	teatgagagg ltteteacae	60 <b>0</b> 660
agagecatto concassico agacha	tace atgaugease	dadacccaea	cagtilyget	72D 78D
casgaggala tgaggactgt ctcagc gtccacttct aggttttcag cctaga	täää eätvätät täää etruäääetä	eraceange#	eace ceacead	818

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                                                                          120
togiggooga cotggeotot cotggeotgt tiottaagat goggagicae atticaatgg
                                                                          180
taggaaaagt ggottogtaa aatagaagag cagtoactgt ggaactacca aatggogaga
                                                                          240
tgeteggtge acattggggt getttgggat aaaagattta tgageeaact attetetgge
                                                                          300
accasattet aggecagttt gttccaetga agettttcce acageagtee acctetgeag
                                                                          360
getggeaget gaatggettg ceggtggete tgtggeaaga teacactgag ategatgggt
gagaaggeta ggatgettgt etagtgttet tagetgteac gttggeteet tecaggttgg
                                                                          420
                                                                          480
ccagacggtg tiggocacto cottotamam cacaggugoe electigotem cagigacceg
                                                                          540
cogtiggiate cottiggica thocascast accaptiate catticaact traggettig
                                                                          600
ttottttogt taatottoot otgtelleto aectetotto allucotegg otaageagna
                                                                          660
ttgggagatg tggoccagag atcoactcot taageaccag tggcgeaaga cactttcttt
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cttcactctq aagtagctgg tggt
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tgcagggttg tigititite attattatig tiagasacgt cacceacagt coctgituat
                                                                          180
ttgtatgtga cagccaacte tgagaaggte ctatttttee acctgcagag gatecagtet
                                                                          240
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                                                                          12D
caatataaag teetggttea cacteaggaa egagagetga eeeagttaag ggagaagttg
                                                                          180
cgggaaggga gagatgcotc cototoattg aatgagcatc tocaggcoot cotoactoog
                                                                         240
gatgaaccyg acaagtocca ggggcaggac ctocaagaaa cagacctogg ccgcgaccac
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                                                                         120
qqceacacqq gacttctcat caggaagtgg gatqtagatq agctqatcaa gacggccagg
                                                                         180
totgeggatg gcaggatcae tgatgtcagg ccggttggta ccgccaatga tgeacacatt
                                                                         240
Ltttttgtg gacstgccat ccstttctgt caggatctgg ttgatgactc ggtcagcagc
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agaagagtoc atotgotgtg aaggagagac agagaactot gggttoogto gtootgtoca
                                                                               180
egigétata caagigétag igécageéta tiaéctate iéactagada ietagétaat geletigit aleactieta alletagada teaateaate aatageetag ageactaat
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                                                                               301
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       <211> 301
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       <213> Romo sapien
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                                                                               120
                                                                               1BO
notageagtt ecagageatc tagetggtgd getggcaccc etggcetcac acagaetece
gagtagctgg gactacaggc acacagtcac tgaagcaggc cctgttagca attctatgcg
                                                                               240
                                                                               300
tacaaattaa catgagatga gtagagactt tattgagaaa gcaagagaaa atcctatcaa
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cattttatic atcalgatgo thicility tocketill cylilicit: Lililicitil toattlicag cascatactt otcasiltot toaggette asatotigag gyatigatot
                                                                              120
                                                                              180
                                                                              240
cocctcatge cagcaagtte aatgittitig ecaccigact gaaccactic CaggagtgCC
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                                                                               30D
                                                                              301
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tgettteact aatgtetetg maettetgte cetetttgil catggmtmgt cceatments
                                                                              180
atgttatett tyaacigato eteatagoag agaatataag aacielgagt gatateaaca ttagogatte aaagamatat Cagalliaaq eteacaetgg tea
                                                                              240
                                                                              283
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                                                                              120
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                                                                              190
toggagrago atcattaata ocaagoagaa tgogtaatag ataaatacaa tggtatatag
                                                                              240
tgggtagacg getteatgag tacagtgtac tgtggtateg taatetggae ttgggttgta
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<211> 301

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                                                                          120
cottogotaa tocctoatag taggagtoot cagaccageo atggggatoa aacatatoot
                                                                          1BO
ttgggtagtt ggtgecaage tegteaatgg cacagaatgg atcagettet egtaaateta
                                                                          240
gggtteegaa attetttett cetttggata algtagttea tateeattee eteetttate
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                                                                          301
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gttcacagtt cagcccctg ctcagaaaac caacgggcca gctaaggaga ggaggaggca
                                                                          120
cettgagaet teeggagteg aggeteteea gggtteeeea geccateaat cattttetge
                                                                          180
accccctqcc tqqgaagcaq ctccctgggg ggtgggaatq ggtgactaga agggatttca
                                                                          240
gtgtgggacc cagggtctgt tcttcacagt aggaggtgga agggatgact aatttcttta
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      <212> DNA
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                                                                          120
cataatacct tagagateaa gaaacattta cacagttcaa ctgtttaaaa atagctcaac
                                                                          180
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                                                                         120
                                                                         180
etgecayatt ittamastes igettesiet tgsagesese ggtesettes contectese
                                                                         240
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                                                                         120
ctcctccatg tattggaasa ctgcaaactg gactcaactg gaaggaagtg ctgctgccag
                                                                         180
tgtgaagaac cagcotgagg tgacagasac ggaagcasac aggaacagec agtotittet
                                                                         240
tectectest gicatacggi eteteteag cateetitgt tgteagggge ctanaaggga
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                                                                         301
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      <211> 301
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<212> DNA
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 gicticaaga atatatoatt cottiticac tagaaccoat ibaaaatata agtoaagaat
                                                                        180
 cttmatatca acamatatat cmagcamact ggmaggcaga atmactacca taatttagta
                                                                        240
 taagtaccca aagttttata aatcaaaagc cotaatgata accattttta qaattcaatc
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tgacolocas toggacioto Logoccaago gtatogotot otoggoatga tgaccagoot
                                                                        180
actaattie cossetaace edecadred edcuadade accadade ctatesacco
                                                                        240
tcectaccgc atgitccaga aaggacagga gacgiccacc aatcccaitg cticeetti
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                                                                        120
coaggiacol tagasacagi igacanligia aggitgotigo tocccaaqac acatootaaa
                                                                        J.BD
aggigitate atogiganam egicticcii etitatigoc enticitati batotomaca
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actquitque ttitqtgtet cittttaae cigiaeegit castiglique estgeetate
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tatatactta gataaaaaat gaggtgaatt actatocatt gaaatcatgc tottagaatt
                                                                       120
aaggocagga gatattotoa ttaatotara etteaggaca etagagtata geageestat
                                                                       180
gttttcaaag agcaqagatg caattaaata ttgtttagca tcaaaaaggc cactcaatac
                                                                       240
agetwataza atgazagace taztttetaa agezattett tataatttae agagtttaz
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g
                                                                       301
      <210> 246
      <21.1> 301
      <212> DNA
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acctgggctt attttaaaga actatttgta gctcagattg gttttcctat ggclaaaata
                                                                       120
egigcitcit gigaaaatta aataaaacag tiaattcaaa gcctigetat aigttaccac
                                                                       180
taacaatcat actaaatata tittgaagta caaagtiiga catgcictaa agigacaacc
                                                                       240
canatgigic tiacaaaaca cgitcciaac aaggiatgci tiacactacc aatgragaaa
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c
                                                                       301
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       <212> DNA
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gcctaspagg gegactggeg geageacaac cuaggaagge aaggttgttt cccccacget
                                                                            120
quatertate throughlyrs acaracaute ctrutaggaa caggatrace catgrates
                                                                            180
octtgatgat caaggttggg gottaagtgg attaagggag goaagttotg ggctcottgo
                                                                            240
cttttcaaac catgaagtca ggctctglat coctcottt cotaactgat attotaacta
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                                                                            120
acaggaagaa agtggtttgg aagacagcca aagasatasa agcagettaa sttgtatcag
                                                                            180
gtacattoca gootgitggo aactocataa asacattica gattitaato coqaatttag
                                                                            240
cteatgagac tggatttttg ttttttatgt tgtgtgtcgc agagctaass sctcaqttcc
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                                                                            301
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      <212> DNA
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coordanget gergreece companies of consequence contracts
                                                                            120
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                                                                            180
                                                                            240
actgaatctt tgactcagaa ttgfftgctg aaaagaatga tgfgactttc #Lmgtcattt
                                                                            300
                                                                            301
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cataagcaca toagtacttt tototggotg gaatagtasa otaaagtatg gtacatotac otaaaagact actatgtgga ataatacata otaatgaagt atlacatgat ttaaagacta
                                                                            180
                                                                            240
caataaaacc aaacatgctt ataacattaa gaaaaacaat maagalacot gattgaaacc
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                                                                            301
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                                                                            120
gycaggggto otomammely comotytomo typomygama typttotymy chychonect
                                                                            180
caltgggalc aatgaasago ticaagaaat ottoaggoto actotottga aggeooggaa
                                                                            240
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                                                                       120
teatteettt tieaetagga acceattema aatataagte aagaatetta atateaacaa
                                                                       180
atatatonag caaactgqaa gycagaataa claccataat ttagtataag tacccaaagt
                                                                       240
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                                                                       301
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      <211> 301
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                                                                       120
tggtctgatt gttttcagac cttaaaatat aaacttgttt cacaagcttt aatccatgtg
                                                                       180
gattititi citagagaac cacaaaacat aaaaggagca agtcggactg aataccigit
                                                                       240
tocatagtyc ccacagggta ttoctcacat tttctccata ggaaaatqct ttttcccaaq
                                                                       300
                                                                       301
Œ
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      <211> 301
      <212> DNA
      <213> Homo sapien
equipegent threetingg graggogram greengaggg gricemagtg ragemeragg
                                                                        60
sactigacea attocctiga agoggotggg ttasaccetg tasatgggas casastrocc
                                                                       120
ccaaatotot toatottaco ctggtggact cotgactgta gaattittig gttgaaacaa
                                                                       180
gaaasaaata aagotttyga ottttoaagg ttgottaaca gytactyaaa gactggooto
                                                                       240
                                                                       300
actteaactg agocaggaaa egotgcagat ttattaatgg gtgtgttagt gtgcagtgcc
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      <212> DNA
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                                                                       120
tgggattttg ttgagttott caageatote ctaatacoot caagggootg agtegggggg
                                                                       180
aggaaaaagg actggaggtg gaatctttat aaaaaacaag agtgattgag gcagattgte
                                                                       240
nacattatta aaasacaaga aacaaacaaa aasatagaga aasaaaccac cccaacacac
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aa
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                                                                           120
acceccaaaa geetggacae ettgageaca cagttatgae caggacagae teatetetat
                                                                           180
aggcaaatag ctgctggcaa actggcatta cotqgtttgt ggggatgggg gygcaagtgt
                                                                           240
giggeetete ggeeiggita geaagaacat teagggtagg eelaagitan tegigtlagt
                                                                           OOE
                                                                           301
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                                                                            60
Eccepacita titingicii teaciatogo aggostiaga agaggictae etgeotecae
                                                                           120
tottecctaq tocaqtetac cocctgqaqt tagaatgqcc atcotqaaqt gaasaqtaat
                                                                           180
qtcacattac tcccttcagt gatttcttgt agaagtgcca atccctgaat gccaccaaga
                                                                          210
tottaatott cacatottta atottatoto titgactoot otttacacog gagaaggoto
                                                                          300
                                                                          3D1
      <210> 258
      <211> 301
      <212> DNA
      <213> Homo sapien
      <220>
      <221> miec_feature
      <222> (1)...(301)
      <223> n - A,T,C or G
      <400> 258
cagcagtagt agatgccgta tgccagcacg cccagcactc ccaggatcag caccagcacc
                                                                           60
aggggcccag ccaccaggcg cagaagcaag ataaacagta ggctcaagac cagagccacc cccagggcaa caagaatcca ataccaggac tgggcaaaat cttcaaagat cttaacactg
                                                                          120
                                                                          180
atgreteggg cattgagget gtcaataana egetgateee etgetgtatg gtggtgteat
                                                                          240
tggtgatoco tgggagcgco ggtggagtaa cyttggtoca tggaaagcag cgcccacaac
                                                                          300
                                                                          301
      <210> 259
      <211> 301
      <212> DNA
      <213> Komo gapien
      <220>
      <221> misc_feature
      <222> (1)...(301)
      <223> n = A, T, C or G
      <400> 259
tratatatgo aaacaaatgo agactangoo toaggoagag actaaaggao atotottggg
                                                                           ត្រ
gtgtcctgaa gtgatttgga cccctgaggg cagacaccta agtaggaatc ccagtgggaa
                                                                          120
gcaaagccat aaggaagccc aggatteett gtgateagga agtgggeeag gaaggtetgt
                                                                          180
tecageteae ateteatetg eatgeageae ggaceggatg egeceaetgg gtettggett
                                                                          240
occioccato ticicaagea gigiocityi igagocatti gcatocitgg ciccaggiyy
                                                                          300
                                                                          302
      <210> 260
      <211> 301
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<212> DNA
      <213> Homo sapien
      <400> 260
tittitititt ccctaaggaa aaagaaggaa caagtotoat aaaacaaat aagcaatgqt
                                                                         60
saggtgtett aucttgaasa agattaggag teseteglilt acasettsta attgaatgas
                                                                        120
aghactqtaa cagccacagt tggccatttc atgccaatgg cagcaaacaa cuggattaac
                                                                        180
tagogcasaa taantuogte lätogaagee eligataagig ettestasse agaetgatte
                                                                        240
actgagacat caqtacotgo cogggoggoo gotrgagoog aattotqoag atatocatça
                                                                        300
                                                                        301
      <210> 261
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 261
asataticga gcaaatccig taactaaigi gictecataa aaggetiiga acteagigaa
                                                                         60
totgottoca tocacgatto tagosatgae ototoggaca tosaagoteo tottaaggtt
                                                                        120
agcaccaact attocataca attoatoago aggaaatasa ggotottoag saggttosat
                                                                        180
ggtgacatec mattetet gatamtttag attectemes accttectag ttmagtgamg
                                                                        240
ggcatgatga tcatecasag coesgtggte settaeteca gaetttetge satgasgate
                                                                        300
                                                                        301
      <21D> 262
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 262
qaggaqagcc tqttacagca tttqtaaqca caqaatactc caggaqtatt tqtaattqtc
                                                                         60
tgtgagcttc ttgccgcaag tctctcagaa atttaaaaag atgcaaatcc ctgagtcacc
                                                                        120
                                                                       180
cctagactic ctaaaccaga tcctctgggg ctggaacctg gcactctgca tttgtaatga
gggctttctg gtgcacacct aattttgtgc atctttgccc taaatcctgg attagtgccc
                                                                       240
catcattaco occacattat aatgggatag attoagagoa gatactotoo agcaaagaat
                                                                       3D0
                                                                       301
      <210> 263
      <211> 301
      <212> DNA
      <213> Homo sapiem
      <220>
      <221> misc_feature
      <222> (1)...(301)
      <223> n - A, T, C or G
      <400> 263
tttagcttgt ggtaaatgac tcacaaaact gattttaaaa tcaagttaat gtgaattttg
                                                                        60
asaattacta citaatccta attcacaata acaatggcat taaggittga citqagitgg
                                                                       120
ttottagtat tatttatggt aaataggoto ttaccacttg caaataactg gocacatcat
                                                                       160
taatgactga ottoocagta aggototota aggggtaagt angaggatoc acaggatttg
                                                                       240
agatgotaag gooccagaga togittgato caaccotott attitoagag gggaaaatgg
                                                                       300
                                                                       301
      <210> 264
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 264
azagacytta asucactota chaccactty tygaactolo eeegggteee tgaceaesco
                                                                        60
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aatgaatgac totaaaaaca atatttacat ttaatggttt gtagacaata aaaaaacaag
                                                                           120
 gtggatagat ctaçaattot aacalittaa qaaaaccata scatttgaca gatgagaaag ctcaattata gatgcaaagt tataactaaa ctactatagt agtaaagaaa tacatttcac
                                                                           180
                                                                           240
 accettesta tasatteact atelligaett gaggeactee ataaaatgta teaegtgeat
                                                                           300
                                                                           301
       <210> 265
       <211> 301
       <212> DWA
       <213> Homo sapien
       <400> 265
 tgcccaagit aigtgiaagi giaiccgcec ccagaggiaa eaciecectg toetcittgt
                                                                            60
 ettettgtga egeagtattt ettetetggg gagaageegg gaagtettet eetggeteta
                                                                           120
 catattotig gaagtotota atcaactttt gttocatttg tttcatttct tcaggaggga
                                                                           180
 ttttcauttt gtcaacatgt tototaacaa cacttgccca tttctgtaaa gaatccaasg
                                                                           240
 cagtocaagg ctttqacatg tcaacaacca gcataactag agtatocttc agagatacqg
                                                                           300
                                                                           301
       <210> 266
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 266
 tacceptotec cottoctocc atocaegoca totacegaato tacategato otoctattos
                                                                            60
. acaccagate acteliteet etacccacag gettgetatg ageaagagae acaaceteet
                                                                           120
 ctottotqtq llocogotto tilitootqtt ottoocacco ottaagttot attootqqqq
                                                                           100
 alegageess cestacocet ascototolo otaagoutoo ttatasocoa gootgoscaq
                                                                           240
 Cacegactor tgacasctgg teeggocast gaactgggeg ctracegolg gotgeotg
                                                                           <u> የ</u>ስር
                                                                           301
       <210> 267
       <231> 301
       <212> DNA
       <213> Homo sapien
       <400> 267
 axayaquaca ggocaqctca goctqccctg gccatctaga ctcagcctgg ctccatgggg
                                                                            60
                                                                           120
 gttoloaqtq etgastorat coaggassag etcacetaga cettetgagg etgaatette
 atecticacag geagelletg agageetgat attectagee ttgatygtet ggagtaaage
                                                                           180
 cteattetes [Lenteteet lettteett caugtteget treeteacut centetette
                                                                           24 D
 sattogotto agottgloig otttagoodt catttecaga agottottot otttggcato
                                                                           300
                                                                           301
       <210> 268
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 268
 aatgtotoac toaactactt cocagootac ogtggootaa ttotgggagt titottotta
                                                                            60
 qatettqqqa qaqetqqtte ttetaaqqaq aaqqaqqaaq qacaqatqta aetttqqate
                                                                           120
                                                                           180
 tegaagagga agtotaatgg aagtaattag teaaeggtee ttgtttagae tettggaata
                                                                           240
 tgotgggtgg ofcagtgago octtttggag aaagcaagta ttattottaa ggagtaacca
                                                                           300
 cttcccattg ttctactttc taccatcate aattgtatat tatgtattct ttggagaact
                                                                           301
       <210> 269
       <211> 301
       <212> DNA
       <213> Homo gapien
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<40D> 269
taacaatata cactagotat cittitaaci giccatcati agcaccaatg aagaticaat
                                                                            60
assattacct ttattcacsc atctcaaasc aattctgcaa sttcttagtg aagtttaact
                                                                           120
atagtoacag accttaaata ttoacattgt tttotatgto tactgaaaat aagttoacta
                                                                           180
cttttctgga tattctttac aaaatettat taaaattcct ggtattatca cccccaatta
                                                                           240
tacagtagca caaccacctt atgtagtttt tacatgatag ctctgtagaa gtttcacatc
                                                                           300
                                                                           301
      <210> 270
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 270
Cattgaagag Cilitgagaa acatcagaac acaagtgott ataaaattaa ttaagootta
                                                                            BO
Cacaagaata catattoott ttatttotaa qqaqttaaac ataqatqtaq otqatqtqqa
                                                                          120
gagottqotq qtqcag:qca tattqqataa caclattcat qqccqaattq atcaaqtcaa
                                                                          180
cceectentt geactggeto etcegeagea gggtygtgca cgatatectg cactagatae
                                                                          240
tggaccaecc aactamatto totoaccegg cigtatoegt saactggott sacegaasso
                                                                           300
                                                                          301
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      <211> 301
      <212> DNA
      <213> Homo sapien
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      <221> misc_feature
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aaaaggttct cataagette aceettteee teeetatlig ategaacett cittctcatt
                                                                           60
tttatagete atetttaggg ttgatalten gttenteett ecettgelet tettgaleen gasttgast esetteaten geetgtatte geteenatte telminnagt gegleenagg
                                                                          120
                                                                          180
tgaaccacag agocacagea cacciettic cettggigae igocticace coat,ganggi
                                                                          240
tototoctoc agatganaac tgatcatgcg cocacatttt gggttttata gaagcagtca
                                                                          300
                                                                          301
      <210> 272
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 272
tannitgota agecaragat aacaccasto asatggasca sateactgto ttosaatgto
                                                                           60
ttatcagess accession ictggastot tostastaco tasacatgco gtatttagga
                                                                          120
Legantautt recteation gagemagana auttettige genecected togatecaen
                                                                          180
gratettete caacaastat aacettgeg: ggetlottgt aetetalett etttgtttte
                                                                          240
ctaaggactt coattgoatc toctacasta titlototac goaccactag satteaguag
                                                                          300
                                                                          301
      <210> 273
      <211> 301
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> {1).\bar{1}.\bar{1}
      <223> n = A,T,C or G
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<40D> 273
acatgtgtgt atgtgtatet ttgggaaaan aanaagacat ettgtttayt atttttttgg
                                                                            60
agagangetg ggacatggat aatcacwtaa tttgctayta tyactttaat etgactygaa
                                                                           120
gaaccgtota aasataaaat ttaccatgto dtatattoot tatagtatgo ttatttoaco
                                                                           180
ttytttetgt eeagagagag tateagtgae ananatttma gggtgaamae atgmattggt
                                                                          240
gggacttoty tttacogagm accetégées squeectes makengantt cegesanane
                                                                          300
                                                                          301
      <210> 274
      <211> 301.
      <212> DNA
      <21.3> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)... (301)
      <223> n = A,T,C or G
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ettatataet ettteteaga ggeaasagag gagatgggta atgtagacaa ttetttgagg
                                                                           6D
aacagtaaat gattattaga gagaangaat ggaccaagga gacagaaatt aacttgtaaa
                                                                          12D
tgattotott tggaatotga atgagatoaa gaggooagot ttagottgtg gaaaagtooa
                                                                          180
totaggtatg gttgcattct cgtcttcttt tctgcagtag ataatgaggt aaccgaaggc
                                                                          240
aattgigett ettitgataa gaagetttet tggteatate aggaaattee agamaaagte
                                                                          300
C
                                                                          301
      <210> 275
      <211> 301
      <212> DNA
      <213> Nomo sapien
      <220>
      <221> misc feature
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      <223> n - A, T, C or G
      <400> 275
teggtgteag eageacytgg cattgaacat tgcaatgtgg ageceaaace acagaaaatg
                                                                           60
gggtgaaatt ggccaacttt ctattaactt atgttggcaa ttttgccacc aacagtaagc
                                                                          120
tggcccftct aataaaagaa aattgaaagg tttctcacta aacggaatta agtagtggag
                                                                          180
tozagagaet eccaggeete agegtaeetg coegggegge egetegaage egaattetge
                                                                          240
agatatecat cacactggeg gnegetegan catgosteta gaaggneeaa ttegeeetat
                                                                          300
                                                                          301
      <210> 276
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 276
tgtacacata ctcastaaat aaatgactgc attgtggtat tattactata ctgattatat
                                                                           គព
ttatcatqtq acttctaatt agaaaatqta tccaaaaqca aaacagcaga tatacaaaat
                                                                          120
theaqageca geagategec atteacegat aeggcaectt atacattgag eatcceaatc
                                                                          180
caatacattt aaacatttyy gaaatgaggg ggacaaatgg aagccagatc aaatttytyt aaaactattc agtatyttc ccttyctca tytctgagaa gyctctcctt caatggygat
                                                                          240
                                                                          3D0
                                                                          301
      <210> 277
      <211> 301
      <212> DNA
      <213> Romo sapien
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<220>
       <221> misc_feature
       <222> (1).,.(301)
       \langle 223 \rangle n = A, T, C or G
       <400> 277
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 stacagagga cttggaggaa gcagagcaac tgaatttaat ttaaaagaag gaaaacattg
                                                                             120
 gastratgge actorigata etticepasa traacactot caatgoocca epotogicot
                                                                             180
 caccatagig gggagaciaa agiggccacg gattigcctt angigtgcag igcgitciga
                                                                             240
 gttenetgte gattacatet gaccagtete ettttteega agteenteeg tteaatettg
                                                                             300
                                                                             301
       <210> 278
       <211> 301
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_featurc
       <222> (1)...(301)
       <223> n = A,T,C or G
       <400> 278
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                                                                              60
                                                                             120
 aucalatona atgeneragy gasastgaag ctgacaattt atggaagcca gggcttqtca
 cogtetetee tettattate cattacetes quattratat assectita taataatee aatgaacate teatestee teacaatett etgecaetat tataagtee teacaagett
                                                                             180
                                                                             24 D
                                                                             300
tatgtgttct togtaactit atggantagg tactoggoog cgaacacgot aagcogaatt
                                                                             301
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       <211> 301
       <212> DNA
       <213> Bomo sapien
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       <221> misc_feature
       <222> (1) ... (301)
       \langle 223 \rangle n = A, T, C or G
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                                                                              60
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 gttatattaa tigocaatat aagtaaatat agattatata tgtatagigt ticacaaagc
                                                                             120
 ttagacettt acctteeage caceceacag tgettgatat tteagagtea gteattggtt
                                                                             180
 atacatgigt agitocaaag cacataaget agaanaanaa atatticteg ggageactac
                                                                             240
                                                                             300
 catetottit cacatgaaat gecacacaca taquacteca acateaattt cattguacag
                                                                             301
       <210> 280
       <211> 301
        <212> DNA
     . <213> Homo sapiem
 gytaulogsky Littectere ciątgasaac giaactacig iigggagiga atigaggaig
                                                                              60
                                                                             120
 tagaeaggtg gtggaaccee attgtggtca atggaaatag gagaatatgg ttctcactct
                                                                             180
 tqagaasaaa acctaagatt agcccagqta qttgcctgta acttcagttt ttctgcctgg
                                                                             240
 gittgatata gtttagggtt ggggttagat taagatctaa attacatcag gacaaagaga
 cogactatta actocacagt tasttaagga ggtatgttcc atgtttattt gttaaagcag
                                                                             3D0
                                                                             301
```

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<210> 281
      <211> 301
      <212> DNA
      <213> Home sapien
      <400> 281
eggtacaaga aggggaatgg gaaagagctg ctgctgtggc attgttcaac ttqqatattc
                                                                         60
gccgagcaat ccasatcctg aatgaagggg catctictga aaaaggagat ctgaatctca
                                                                        120
atgtggtagc aatggettta tegggttata eggatgagaa gaacteeett tggagagaaa
                                                                        180
tgtgtagcac actgcgatta cagctaaata acccgtattt gtgtgtcatg tttgcatttc
                                                                        240
tgacaagtga aacaggatot tacgatggag ttttgtatga aaacaaagtt geagtaecte
                                                                        30D
                                                                        303
      <210> 282
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 282
caggitactae agaattaaaa tactqacaaq caaqtagitt elliggeqige aegaatigea
                                                                         <del>የ</del>Ω
tocagaacco aaaaattaag amattoassa sgacattttg toggcoccig ctagcacags
                                                                        120
agogoagang canageceag geagasceat getaacetta cageteagee tgeacagaag
                                                                        180
cycagaagca aagcccaggc agaaccatgc taaccttaca gctcagcctg cacagaagcg
                                                                        240
Codescrete decreades escatactes certecader esdectdes edsected
                                                                        300
                                                                        301
      <210> 283
      <211> 301
      <212> DNA
      <213> Romo sapien
      <400> 283
atotytatao gyoayacaaa otttataray tytagagagg tyagogaaaq qatqoaaaaq
                                                                         60
cactityagg getteataal aatatoetge tigaaaaaaa aaatototay tigalactea
                                                                        120
stgoatoloc agacatages agaggtteet eléacceate aggtéafeat etittetate
                                                                       180
acttoccago ttttatgeaa addittight asattotata afggigatat gcatottta
                                                                       240
ggaaacetat ecatilitaa aastotatti telgiaagaa cigacegacg aetiigotti
                                                                       300
ġ
                                                                       301
      <210> 284
      <211> 301
      <212> DNA
      <213> Homo sapien
      <400> 284
caggtacaaa acgctattaa gtggcttaga atttgaacat ttgtggtctt tatttacttt
                                                                        60
gettegtgtg tgggcaaage aacatettee etaaatatat attaccaaga aaageaagaa
                                                                       120
geagattagg tittigaess ascanscagg ceasasgggg getgaeetgg ageagagest
                                                                       100
ggtgagagg¢ aaggcetgag agggcaaqtt tyttgtggac agatetgtge etaetttatt
                                                                       240
actggagtaa aagaaaacaa agtteattga lglegaagga tatatacagt gttagaaatt
                                                                       300
                                                                       301
      <210> 285
      <211> 301
      <212> DNA
      <213> Homo sapien
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      <221> misc_feature
      <222> (1)...(301)
      <223> n - A,T,C or G
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acateaceat gateggatee eccaeceatt ataogttqta tqtttacata aatactette
                                                                                  60
aatgateatt agtgttttaa asaaaatact gaaaacteet tetgeateee aatetetase
                                                                                 120
caggaaagca aatgctattt acagacctgc aagccctccc tcaaacnaaa ctatttctgg
                                                                                 180
attacetatg totgacttot tttgaggtoa cacgactagg caeatgetat ttacgatotg
                                                                                 240
caaaagotyt ttyaagayto aaaycoocca tytgaacacy atttotyyac cotytaacag
                                                                                 300
                                                                                 301
       <210> 286
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 286
taccactgre threegroup guitgacaged tragectory totocaeeee essettiget
                                                                                  60
tglatatlet thitgcctta cegiggalca tictegtagg aseggacagt asgettill atcasaetgt gtostgccag taagegatgt latattotit totosttot toccoacca
                                                                                 120
                                                                                 180
assetasget accetatage tistasgect ceasiliting cettitacts assigtgett
                                                                                 240
gtttctgttc attgtgtatg cttcetcacc tatattaggc eaattccatt ttttcccttg
                                                                                 300
                                                                                 301
       <210> 287
       <211> 301
       <212> UNA
       <213> Homo sapien
       <40D> 287
tacayatotg ygaactaaat attaaaaatg agtytggotg gatatatgga gaatgttyyy
                                                                                  6D
uncagaagga acqtagagat cagatattuc aacagctttq ttttgagggt tagaaatatg
                                                                                120
acatgathto gittatgacog cacagittas gcagcagogo cagaaloche accotoleco cogiggitat cincinnoca gottageigo circatgilat cacagitato cattiligitt
                                                                                 180
                                                                                240
gtigratgto ttgtgaagec ateaagatit tetegiotgt ttteetetea ttggtaatge
                                                                                300
                                                                                301
       <210> 288
       <211> 301
       <212> UNA
       <213> Homo sapien
gtacacctsa ctgcaaggac agctgaggaa tgtaatgggc agccgctttt saagaagtag
                                                                                 60
agtcaatagg aagacaatt ccagttceag ctcagtctgg gtatctgcza zgctgcaaaa gatctttaaa gacaatttca agagaztatt tccttaaagt tggcaatttg gagatcztac
                                                                                120
                                                                                180
annageatet gefittgiga titanittag eteatetgge energganga nicennaeng
                                                                                240
totgoottaa tittggalga atgostgetg gaaattomat satilagaaa qtiesseess
                                                                                300
                                                                                301
      <210> 289
      <211> 301
       <212> DNA
      <233> Homo sapien
      <220>
      <221> misc_feature
       <222> (1)...(301)
      \langle 223 \rangle n = A,T,C or G
      <400> 289
ggtacactgt ttccatgtta tgtttctaca cattgctacc tcagtgctcc tggaaactta
                                                                                 6D
gettitgatg tetecaagta gtecaeette atttaactet ttgaaactgt ateatetttg
                                                                                120
ccaagtaaga gtggtggcct atttcagctg ctttgacaaa atgactggct cctgacttaa
                                                                                180
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```
cgttctataa atgaatgtgc tgaagcaaag tgcccatggl ggcggcgaan aagagaaaga
                                                                        240
tgtgttttgt ttiggactet etgtggteee ttoeaatget gtgggtttee aaccagngga
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      <211> 301
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      <220>
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      <223> n - A,T,C or G
      <400> 290
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tgactgatet gitcatitet etcacagete tiacecccaa aagetiitee aecetaagig
                                                                       120
ttotgacoto ottitotaat cacagtaggg atagaggoag andoacotac aatgaacatg
                                                                       180
gagitotato aagaggoaga aacagcacag aatoccagti tiaccattog ciagcagigo
                                                                        240
tyccttgaac aaaaacattt ctccatgtct cattttcttc atgcctcaag taacagtgag
                                                                       300
                                                                       301
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      <211> 301
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      <213> Homo sapien
      <400> 291
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tatatraget agaillill betatgetti accigetatg gaaaalliga carattetge
                                                                       120
tttactcttt tgtttatagg tgaatcacaa aatgtatttt tatgtattct gtagttcaat
                                                                       180
                                                                       240
agocatggct gittactica titaatitat tiagcataaa gacattatga aaaggcctaa
acatgayott cacttoccca ctaactaatt agcatotgtt atttottaac ogtaatgoct
                                                                       300
                                                                       301
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      <211> 301
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      <220>
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      <222> (1)...(301)
      <223> n - A,T,C or G
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                                                                       120
tgtattaaat aatttttaag tttaaaagat aasataccat cattttaaat gitggtattc
aasaccaaag natataaccg aaaggaaasa cagatgagac ataaaatgat ttgcnagatg
                                                                       180
ggaaatatag tasttyatga atgttmatta aattocagtt ataatagtgg ctacacacto
                                                                       240
toactaceca cacegaccoc acagtoctet atgocaceae cacetticce taectiquee
                                                                       300
a.
                                                                       301
      <210> 293
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      <400> 293
ggtacessyt gologlocca gestyttacs tytteteast gasasoticko quitastyste
                                                                        60
                                                                       120
tiqiqbaqto acttotgatt obgacaatoa atcaatcaat qqcchaqago actqactqtt
sacacasacg tosclogess agtagosaca quittaugto tasatacasa quigitotgt
                                                                       180
```

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qtqagaattt tttaaaaggc tacttgtata ataaccettg teatttttaa tgtacctegg
                                                                        240
                                                                        300
coqcgactat gctaageega attetgeaga tatecateae actggeggee getegageat
                                                                        301
      <210> 294
      <211> 301
      <212> DNA
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      <220>
      <221> misc_feature
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      \langle 223 \rangle n - A.T.C or G
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attesstass attacettta tteacacate teasaacast tetgessatt ettagtgaag
                                                                        120
tttaactata gtcacagane ttaaatatte acattgtttt ctatgtctac tquaaaataag
                                                                        100
                                                                        240
ttcactactt ttctqqqata ttctttacae astcttatta auattcctqq tattaccacc
                                                                        300
cocaattata cagtagoaca accacottat gtagttttta catgalagot otgtagaggt
                                                                        301
      <210> 295
      <211> 305
      <212> DNA
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      <400> 295
gtactette tetecerte tetgaattia attetteaa ettgeaatti geaaggatta
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cacatttcae tgtgatgtat attgtgttgc asaassaas gtgtctttgt ttsaasttsc
                                                                        120
tiggttigtg aatocatott gottittooc cattggaact agtoattaac coatototga
                                                                        180
actggtagea amacrictge agagetagic talcageate tgacaggige attggatggt
                                                                        Z40
                                                                        300
totoagaace atticaceca gacageotyt ttetateety titaataaat täättiggyt
                                                                        305
tctct
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      <211> 301
      <212> DNA
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      <400> 296
                                                                         60
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                                                                        120
carriagtag tasartasaa atsaactgaa actitatgga atetgaagtt attiteettg
attamataga attamamaac caatatgagg maacatgama ccatgcaatc tactatcaac
                                                                        180
                                                                        240
tttgaasaag tgsttgaacg aaccacttag ctttcagatg atgaacactg ataagtcatt
tqtcattact ataaatttta aaatctgtta ataagatggc ctatagggag gaaaaagggg
                                                                        300
                                                                        301
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      <211> 300
      <212> DNA "
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(300)
      <223> n - A, T, C or G
      <400> 297
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                                                                        60
                                                                        120
addátttkan seaccttgaa ggagastcat titgacaaga agtacttaag ngtctegsa
aceaegangt geaccagetg associated ggggaanett acatgigtig traggerigt
                                                                        180
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tocatcattg ggagtgcact ggccatccct caaaatttgt ctgggctggc ctgagtggtc
                                                                        240
accedarcte egececace acectaaece gaatteteea gatatecate ecacteeeg
                                                                        300
      <210> 298
      <211> 301
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc_feature
      <222> (1)...(301)
      <223> n = A,T,C or G
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                                                                         60
ggeatetgag agacetggtg ttecagtigtt tetggaaatg ggteecagtg eegeeggetg
                                                                        120
tgaagetete agateaatea egggaaggge etggeggtgg tggeeacetg gaaeeacect
                                                                        180
gteetgtetg tttacattte actayeagqt tttetetggg cattaenatt tgtteeecta
                                                                        240
caacagtgac ctgtgcattc tgctgtgccc tgCtgtgtct gcaggtggct ctcagcgagg
                                                                        300
                                                                        301
      <210> 299
      <211> 301
      <212> DNA
      <213> Komo sapien
      <400> 299
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                                                                        60
tesetgeace etetgectee caggitegag caatteteet gesteagest eccaggiage
                                                                        120
tgggattgca ggctcacgcc accateccca gctaattttt ttgtattttt agtagagacg
                                                                       100
gagtitegee atgittggeea getggtetea aacteetgae etcaagegae etgeetgeet
                                                                       240
cygectecca amytyczyga attatagąca tyayteaaca cycecaycet aamyatattt
                                                                       300
                                                                       301
      <210> 300
      <21.1.> 301
      <212> DNA
      <213> Homo sapien
      <400> 300
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                                                                        60
tatgtercae accesetggg assignted acctggetse tteetetate agetgggtes
                                                                       120
getgeattee acaaggitet cageetaatg agtiteacta cetgecage teaasactta
                                                                       180
gtamagcamag accatgacat toccocacgg amatemagnet tigeoccace gtotigtime
                                                                       210
tataaagoot geototaaca gtoottgott ottoacacca atoccgagog catcocccat
                                                                       300
                                                                       301
      <210> 301
      <211> 301
      <212> DNA
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agaggaecce aggictccae gcaaccacat ggicaagggc atgaataatt aaaagttggt
                                                                       120
ggqmactcac Amagaccetc agagetqaga cacessase agtgggaget cacaaaqace
                                                                       180
ctoagagety Agaracecar aaragtygga geteacaaag arreteagag etgagagage
                                                                       240
cocaacages cetegiteag eigecaratg igigaataag gaigeaatgi ecagaagigi
                                                                       300
t.
                                                                       301
      <210> 302
      <211> 301
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<212> DNA
       <213> Homo sepien
       <400> 302
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tgaettttga aaattactac ttaatcctaa ttcacaataa caatggcatt aaggtttgac
                                                                                 120
tiqagttggt tottagtatt atttatggta aataggotot taccacttgc aaataactgg
                                                                                180
ccacatcatt aatgactgac ttcccagtaa ggctctctaa ggggtaagta ggaggatcca
                                                                                 240
caggattiga gatgctaagg coccagagat ogtitgatoc aaccotetta tittcagagg
                                                                                 300
                                                                                301
       <210> 303
       <211> 301
       <212> DNA
       <213> Homo sapien
       <400> 3D3
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                                                                                 50
atattettt tigacaettt aacacatett etteteteag agattettte acaatagcae
                                                                                120
tygotaatgy aactacogot tycatyttaa aaatgytygt ligtyaaaty etcetaggoo
                                                                                180
agtaacgggt atgtittet accteatett ligeteette eesagggace teaagacite
                                                                                240
categatiti atatetyggg tetagaaaag gagttaatet gtitteecte ataaalteac
                                                                                300
                                                                                301
       <210> 304
       <211> 301
       <212> DNA
       <213> Romo sapien
       <400> 304
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                                                                                 60
                                                                                120
etttttagtg tateatatea ggaateatet cacattggtt tetgecatta etgetgeagt
                                                                                180
gactitcago cactigggta angiquegit ggocalatot ciccactuca asattactos
                                                                                240
ttttcctttt gtaattaata agtgigigig igaagattet tigagatgag etataleit
                                                                                300
                                                                                301
       <210> 305
     <211> 301
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc feature
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\langle 223 \rangle n = A,T,C or G
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gangtacago giggicaagg taacaaqaaq aaaaaaatgi gagiggcato cigggaigaq
                                                                                 60
                                                                                1.20
cagggggaca gacctggaca gacaughtgh califfortgo tgtgggtagg amaafgggog
taaaggagga guaacagota caassictice aactcaglat taaggtatte teatgeetag
                                                                                160
aatattggta qaaacaagaa tacattcata tqqcamataa claaccatgg tggaacaasa ttctgggatt taaqliggat accaangasa ttgtattaas ayagctqttc atygastaag
                                                                                240
                                                                                300
                                                                                301
       <21.0> 306
       <21.1> 8
       <212> PRT
       <213> Romo sapien
       <400> 306
Vel Leu Gly Trp Val Ala Glu Leu
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5
 1
      <210> 307
      <211> 637
      <212> DNA
      <213> Homo sapien
      <400> 307
                                                                           60
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ttgtgatcag gtggtctatg gggcttatcc ctacaaagaa gaatccagaa ataggggcac
attgaggaat gatzettgag cocsaagage attcaatcat tgttttattt goottmitttt
                                                                          180
cacaccatto otoagogago gattaccaco etogogottat gaagatoott gaacacccca cacatageac egogogatato agateaacao tttettagee atagagatte acageccaga
                                                                          24D
                                                                          300
geaggaggac géftgezeae catgezggat gacatgeggg atgegetegg gattggtgtg
                                                                          360
aagaagcaag gactyttaga gocaggettt ataqtaacaa gacggtyggg caaactetya
                                                                          420
ttřecetagě ágaatetekt éétetéett tactaaetti řeakáciééé apetaeloáa
                                                                          480
actuattaqu ctqaqaacct totqqaalge actiqaccca actgatagaq qaaqtagcca
                                                                          540
                                                                          600
gataggages titicocaqta autataqqae atatotagee agetilitgia gcactocige
                                                                          637
ttacagatac tggggcagca aataaaaactg eatcitg
      <210> 308
      <21]> 647
      <212> DNA
      <213> Homo mapien
      <220>
      <221> misc_feature
      <222> (1) .... (647)
      <223> n = A, T, C or G
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                                                                           60
                                                                          120
tgotcaggag aaggttoata taggactiic tactgoccas ggttotatac aggatataaa
                                                                          180
gángootóac agtalagato tagtagoaaa gaagaagaaa caaacactga totottootg
                                                                          24 B
chapterint qaccottigg seriecting accettlags scaagectar clastating
                                                                          300
ctagagaaaa qaccaacaac ggcctcaaag gatctCttac catgaaggtc tcagctaatt
                                                                          360
cttggctaag atgtgggttc cacattaggt tctgaatatg gggggaaggg tcaatttgct
cattitgtgt gtggatasag tcaggatgcc caggggccag agcagggggc tgcttgcttt
                                                                          420
gggaacaatg gctgagcata taaccatagg ttatggggaa caasacaaca tcaaagtcac
                                                                          480
                                                                          540
tqtatcaatt qocatqaaqa cttqaqqqac ctqaatctac cqattcatct taaqqcaqca
ggaccagttt gagtggcaac aatgcagcag cagaatcaat ggaaacaaca gaatgattgc
                                                                          60D
                                                                          647
aatgtocttt tttttetoct gottotgact tgataaaagg ggacogt
      <210> 309
      <211> 460
      <232> DNA
      <23.3> Homo sapien
      <400> 309
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actitatagt litaggetgga eattggaaaa aaaaaaage cagaacaaca tgtgatagat
aatatgatto getoeseset teesgaetos tosstostos aegtostoga etattotato
                                                                          120
pancecatot, toagosagag ggggsastac toatcatttt tggccagcag ttgtttgatc
                                                                          180
accasscate atgecagaat acteagesaa cettettage tettgaqaag teaaagteeg
                                                                          240
                                                                          300
qqqqaattta ttootqqoaa ttttaattqq actoottatq tgaqaqoago qqotaccoag
                                                                          360
etggggtggt ggagegaace egteactagt ggacatgcag tggcagaget cetggtaace
ecci, quage atacacaggo acatgtqtqa tgccaagcgt qacacctqta qcactcaaat
                                                                          420
ttgtcttgtt tttgtctttc ggtgtgtaag attcttaagt
                                                                          460
      <210> 310
      <211> 539
      <212> DNA
      <213> Homo sapien
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acgggette tcaesteesg etaggeeesg aegazeett esetablete ggcegseetg
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                                                                             120
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taggaaagag aaacacagaa qqaaqagaca caataaaagt cattatqtat totgtgagaa
                                                                             180
qtcagacagt asgatttgtg qgasatgggt tggtttgttg tatggtatgt attttagraa
                                                                             240
taatetttat ggeagagaaa getaaaatee tttagettge gtgaatgate aettgetgaa
                                                                             300
ttcctcmagg taggcatgat gmaggagggt ttagaggmaga cacagacaca atgmactgmc
                                                                             360
                                                                             420
ctagatagas agcettagts tactcageta ggastagtga ttetgaggge acactgtgae
atgattatgt cattacatgt atggtagtga tggggatgat aggaaggaag aacttatggc
                                                                             480
atattttcac coccacaaaa gtcagttaaa tattgggaca ctaaccatcc aggtcaaga
                                                                             539
      <210> 311
      <211> 526
      <212> DNA
      <213> Homo sapien
      <220>
      <221> misc feature
      <222> (1) ... (526)
      <223> n = A, T, C or G
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                                                                               60
ttttgacgtt ttctctaauc tactuaagag gcattaatga tccalaaatt atattutcta
                                                                              120
cattiacago auttesaatg tquicagoat qasatetteg cuacagogga agcustatas
                                                                              180
attenacety gestesages tratcottes atateators coagesgect itgetstttg
                                                                              240
tittcacee gtgaagcatt cttetasagt gtcateecct ttttggggae actatgggaa
                                                                              300
assatgggge sactotgsag ggttttasgt etottacotg sagotecage otcosteaco
                                                                             360
                                                                              420
tototttaca gggagotoot gcagococta cagaaatgag tggctgagat tottgattgc
acagcaagag cttctcatct asaccettte cetttttagt atetgtgtat caagtatasa
                                                                              480
agtictates actitatint acttatities atcoccased cacegi
                                                                             526
      <210> 312
      <211> 500
       <212> DNA
       <213> Homo sapien
       <220>
       <221> misc_feature
       <222> (1)...(500)
      <223> n = A, T, C or G
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                                                                               60
                                                                              120
coatttetet ticcetteca cetgecagtt tigetgacte teaactigie atgagigtaa
                                                                              180
                                                                              240
geattaagga cattatgett ettegattet gaagacagge eetgeteatg gatgactetg
                                                                              300
gettettagg aasatatttt tetteesaas teagtaggas stetasaett ateceetett
tgcagatgtc tagcagcttc agacatttgg ttaagaaccc atgggaaaaa aassaateet
                                                                              360
tgctaatgtg gtitcctttg taaaccanga ttcttatttg nctggtatag aatatcagct ctgaacgtgt ggtaaagatt tttgtgtttg aatataggag aaatcagttt gctgaaaagt
                                                                              420
                                                                              480
                                                                              500
tagtottaat tatotattgg
       <210> 313
       <211> 718
       <212> DNA
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       <220>
       <ZZl> misc_feature
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<210> 318
     <211> 151
     <212> DNA
      <213> Homo sapien
      <400> 318
                                                                         €D
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getgeagget ggagtgtett tatteetgge aggagacege acatteeact getgaggetg
                                                                        120
                                                                        151
tgggggggt ttatcaggca gtgataaaca t
      <210> 319
      <211> 151
      <212> DNA
      <213> Homo sapien
      <400> 319
                                                                         60
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categateqt actaggtatt aatagatetg taaagaaaga aatcacacca ttaataatgg
                                                                        120
                                                                        151
taagattggg tttatgtgat tttagtgggt a .
      <210> 320
      <211> 150
      <212> DNA
      <213> Nomo sapien
      <400> 320
                                                                         60
aactagtgga tecaetagte cagtgtggtg gaaftecatf gtgttggggt tetagatege
gageygetge cettttttt ttitttttg ggggggaatt ittititit aatagttait
                                                                        220
                                                                        150
gagtgtteta cagettacas tatataccat
      <210> 321
      <211> 15I
      <212> UNA
      <213> Home sapien
      <400> 321
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                                                                                  120
                                                                                  1 B O
aquettotty attytuagto tytytoacat chagtgatty tittggtite tyttocetit
                                                                                  240
ctgactgood aaggggotos gascoccago satoccttoc titosctaco tictittitg
                                                                                  300
                                                                                  360
gangtagttg gaaagaactq aaattgtggg gggaaggtag gangcacatc aataaagang
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Aeaccaccea golgessaae ea
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       <211> 536
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caataggoca cataaacttg gotggatgga acctcacaat aaggliggtea cotottgttt
                                                                                  18D
gtttaggggg atgccaagga taaggccagc tcagttatat gaagagaagc agaacaaaca
agtotttoag agabalggal gcaatcageg tgggatocog gtoacatoaa ggtoacacto
caccttoalg tqcctgeatg gttgccaggt cagaasaatc cacccttac gagtgcggct
tcgaccctat etcccccgc cgcgtccctt tctccataaa attottctta gtagctatta
                                                                                  24 D
                                                                                  30D
                                                                                  36D
collettall attigateta quantigere tertittace estaccatga geoctacaaa
                                                                                  420
canctaacet gecaetaata gttatgteat ecetettatt aateateate etageeetaa
                                                                                  480
                                                                                  536
gtetggeeta tgagtgaeta caasaaggat tagaetgage egaatsacaa aasaaa
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                                                                                  120
                                                                                  180
azataacata loggaltigg agagacactg ccaactggct ggagattaat coggacactg
                                                                                  240
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gtgccatttc c
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        <221> misc_feature
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ctaaqtottq ttoccooaao aaggaaaaag aasagotott ctcaqttaco aattotqqqa
                                                                          120
agggágaclá tacelggete tigecetaag tgagaggiet teeeteege accaaaaaa
                                                                          180
agaaaggett tetatticae tgqcccaggt agggqqaagg agagtmaett tqmgtetgtg
                                                                          240
ggtctcattt cccaaggtgc cttcaatgct catnamaacc ee
                                                                          282
      <210> 347
      <211> 201
      <212> DNA
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      <220>
      <221> misc_feature
      <222> (1)...(201)
      <223> n - A, T, C or G
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tasatatase Etttaasana niaetaneag ettitaeeta ngeteetaaa tgettgissa
                                                                          120
totgagactg actggaccca cocagaccca gggcaaagat acatgttacc atatcatett
                                                                          180
tatasageet tttttttgt c
                                                                          201
      <210> 348
      <211> 251
      <212> DNA
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      <400> 348
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egégegaace qtgccageat qaaectgecc ctaagtccca ggtgcccctg ggcaggcaga
                                                                          120
aggagacact cocagoatgg aggaggettt atottttcat cotaggtcag gtotacaatg
                                                                          180
ggggaaggtt ttattataga acteccaaca geccacetea etectgecae ecaceegatg
                                                                          240
accetacete e
                                                                         251
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      <212> DNA
      <213> Homo sapien
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                                                                         120
cagaaqqqtc tgaactctec gtqttaccag agaacataat gcaattcatg cattccactt agcaattttg taaaatacca gaaacagacc ccaagagtct ttcaagatga gqaaaattca
                                                                         180
                                                                         240
actcctggtt t
                                                                         251
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      <211> 90B
      <212> DNA
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                                                                          60
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cogotogaat toototogtt atgatoacaq agammatemt cicilcotot qtgacacam
                                                                         180
caectgtaaa titgatgggg aatgttlaag aattggagac anlqtgactt gegictgica
                                                                         240
gttczagtgo zacaatgact atgtocotgi gtglągcico estgggasas gotaccagas
                                                                         300
tgagtgttac ctgcgacugg ctgcatqcaa acagcagagt gagatactig iggtgtcaga
                                                                         360
aggatoatqt godacagtoc algaaggoto tggaqaaact agtcaaaaqq agacatecac
                                                                         420
ctgtgatatt tgccagtttg gigcagaatg tgacqaagat gccgaggatg tctggtgtgt
                                                                         460
gtgtaatatt gaetgttele eseccaett caateceste tgegettetg atgggaaate
                                                                         540
ttatuataal goalgocaaa toanagaago atogtgtoag aaacaggaga aaattgaagt
                                                                         600
catqtcitiq qqtcqetqtc aagataacac aactacaact actaaqtctq aaqatqqqca
                                                                         660
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ttatgcaaga acagattatg cagagmatgo taacaaatta qaaqaaaqtg ccagagaaca
                                                                           720
ccacatacet tgteeggaae attacaatag ettetgeata éataggaaagt gtoagéatte tateaatata caggageeat ettgeaggta taataetagt tataetagaa aacaetata
                                                                           780
                                                                           840
aaaanaggad tadagdgtto tatacgitgt toocoggtoot etacgatito aqtatgtott
                                                                           900
                                                                           908
aatcccaq
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      <211> 472
      <212> DNA
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gtceescct( aatgccettg ttattgtgas ttaggsttaa gtagtaatit tcaaaattca
                                                                           120
catteactig attitement cagettigyg agicatties caseagetae atgigtases
                                                                           180
Latgetasse aceaccatig tattcctgtt titcteeaca gtoctsettt ctaacacigt
                                                                           210
atatateett egacateaat gasettigit tiettitaet eeagisataa agtaggeaea
                                                                           300
gatetgteea caacaaactt geoetotoat geottgeete teaccatget etgeteeagg
                                                                           360
teageceest titggeeigt tigittigte aaaaacetaa teigetiett gefiiteitg
                                                                           420
gtaatatata titagggasg atgitgotti goodacacac gaagdaaagi aa
                                                                           472
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      <212> DNA
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                                                                           120
caggetypot tecqteetta eqalqaaqae caeqatqeaq bttecaaaca btqccaetae
                                                                           180
                                                                           240
etacalggaa aggaggggs agccaaccca gaaalgggct tictctaatc cigggalacc
                                                                           251
aataagcaca a
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      <211> 436
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                                                                           120
                                                                           180
gtatecasau geaaaseage agatataesa aalkaaagag seagaagata gadattaaca
gataeggess ettataestt gacaaleess ateesataea tittassestt igggasalga
                                                                           240
gggggacasa tggoagcosr atcaaatttg tgtesaacta ttcaglatgt ttcccttgct
                                                                           300
                                                                           360
toatotolga reaggoloto cottoaalgg ggatgacaaa clocaaatgo cacacaastg
                                                                           420
ttaacogest actagettos cactggaacg ggggtaaaga agaaattatt tictataaaa
gggctcctee tgtagt
                                                                           436
      <210> 354
      <211> 854
      <212> DNA
      <213> Homo sapien
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caagtotgaa accasatota ggaaacatag gaaacgagoo aggoacaggg otggtgggco accatttggg ttgatatttt gottaatotg catottttga gtaagatoat
                                                                           730
                                                                          180
ctggcagtag aagctgttet ccaggtacat ttctctaget catgtacaaa aacateetga
                                                                          240
aggaettigt caggigeett getaaaagee agatgegtte ggeactiect tegtetgage
                                                                          300
                                                                           360
ttaattgcac acctacaggo actgggotca tgctttcaag tattttgtcc tcactttagg
                                                                          420
gigagigaaa gaiccccett miaggagcec ligggagaga tvatalaaaa getgactell
gagtacatgo agtmatqogg tagatutgtg tgqtqtqtct tcattcctgc magggtqctt
                                                                           480
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gttagggagt gtttccagga ggaacaagtc tgaaaccaat catgaeataa atggtaggtg
                                                                          540
 tyaactggaa aactaattca aaaqagagat cgtgatatca gtgtggttga tacaccttgg
                                                                          600
 caatatggaa ggctciaatt tgcccatatt tgaaataata attcagctti ttgtaataca
                                                                          660
 aaataacaaa ggattgagaa tcatggtgtc taatgtataa aagacccagg aaacataaat
                                                                          720
 etatcaects cataeatsta asatscatst sacccaasa sgccccaasg tsscasses
                                                                          780
 cattgtacco attttccctt ccaaaatgtg ageggeggge ctgctgcttt caaggetgte
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 acacgggatg toag
                                                                          B54
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       <211> 676
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                                                                          120
 atcoacaagt catacetgga totcagegaa gagggeaegg aggeageage agecaetggg
                                                                          180
 gacageateg etgtaaaaag uetaeeaatg agageteagt teaaggegaa ceacecette
                                                                          240
 ctottettta taaggeacae teataceaae acquiectat tetgiggeaa gettgeetet
                                                                          300
eccteateeg algogottee gteeggetee gagttgeaga tgaggtgeag agacaateet
                                                                          360
gtgactitco caeggecasa aspetgites esectesage acctetgige etcagtitge
                                                                          420
tcatetgese astaggtets geattlette casceattle atgagttyte asgetaagge
                                                                          480
tttgttaatc atggassaag gtagacttat gcagssagco tttutggett tettatetgt
                                                                         54 D
ggtgtctcat ttgagtgctg tccagtgaca tgetcaagtc selyagtaac attttaaggg
                                                                         600
attagatttt cttgacttgt atgtatctgt gagatcttga ataagtgacc tgacatctct
                                                                         660
gcttaaagaa aaccag
                                                                         676
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      <211> 574
      <212> DNA
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                                                                          60
catgiggesc cigaciques icesaccasa ottostaque caacaaagai gggecactea
                                                                         120
casgetteec attigiaget cleagigest atgagtatet gacacetitt cetetettea
                                                                         180
gtotottagg gaggottaaa totgtotoag gtgtgotaag agtgocagoo caaggkggto
                                                                         240
aaaagtocac aaaactgcag totttgctgg gatagtaagc caaquagtqu utqqacaqua
                                                                         300
gagticttt cttgggcaac agataaccag acaggactct aat.cgtgctc ttattuaaca
ttcttctgtc tctgcctaga ctggaataaa aagccaatct ctctcgtggc acaggqaagg
                                                                         360
                                                                         420
agatacaago togittacat gigatagato taacaaaggo atciecogaa giciggioig
                                                                         480
gatagacggc acagggagct cttaggtcag cgctgctggt tggaggacat tcctgagtcc
                                                                         540
agetttgcag cetttgtgca acagtacttt ccca
                                                                         574
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      <211> 393
      <212> DNA
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taatatggkg kcttgttcac tatactteaa aatgcaccac toataaatat ttaattcagc
                                                                        120
eagccecasc charactigs titletcase eastaccect asstatesase gesaeeaag
                                                                        180
atagatetas tiaticcagi tittitaana citaaaarat attocatigo ogaattaara
                                                                        240
araarataag tgttatatgg aaagaaggge alleeageae actmearaaa cetgaggkaa
                                                                        300
grateatrig tacasastis aartgreett titiggestilt tescassitt grazegktot
                                                                        360
ttttttttt tttctgtttt tttttttt tac
                                                                        393
      <210> 35B
      <211> 630
      <212> UNA
      <213> Homo sapien
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                                                                       120
quataqaqte qqqeaqctas tocaquaceq qqaqqtcaca qaqacatccc taaqqaaqtq
                                                                       160
qegtttasac tgaqaqaagc aagtgcttaa actgaaggat gtgttgaaga agaagggaga
                                                                       240
qtagaacaat ttqqgcaqaq ggaaccttat aqaccctaaq gtqqqaaggt tcaaagaact
                                                                       DOE
quasgagage taquacaget ggageegtte teeggtgtaa agaqqagtea aagaqataaq
                                                                       360
attasagatg tgaegattae gatettggtg geatteaggg attggeaett ctacaagaaa
                                                                       420
toactgaegg gegtaetgtg acettacttt toacttoegg atggocatte teactcoegg
                                                                       480
gggtagactg gactaggtaa gactggaggc aggtagacct cttctaaggc ctgcgatagt
                                                                       540
                                                                       600
gaaagacaaa aataagtggg gaaattcagg ggatagtgaa aatcagtagg acttaatgag
                                                                       630
caagecagag gtteeteeac aacaaccagt
      <21D> 359
      <211> 620
      <212> DNA
      <213> Homo sapien
      <400> 359
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ctcaccagae gaetaaagtg ctctgccagt tattaaagga ttactgctgg tgaattaaat
                                                                       100
                                                                       240
aliquation coaagggaan tagagagali ottotogatt alottoaata titatitoac
                                                                       300
aggattaact gttttaggaa caqatataaa gcttcgccac qgaagagatg qacaaagcac
adagaceaca tgatacetta ggaageaca chaccettte aggealaasa tttggagasa
                                                                       36D
tgcaecatta ugcttcetga atambatgta gaaegaaggt ctgstgeess ugscatcett
                                                                       420
                                                                       480
astgtaagat aactttataa geattctggg tcaaateaas Etctttgaag aaascetcca
                                                                       540
astgtcsttg acttatcses tactatettg gestataace tatgsagges asactseses
aacaaaaagc tcacaccaaa caaaaccatc aacttatttt gtattctata acatacgaga
                                                                       600
                                                                       620
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      <211> 431
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      <213> Homo sapien
      <400> 360
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Lqatqaatqa tqaacqtqat ggactattql atggagcaca tcttcagcaa gaqqqqqaaa
                                                                       120
                                                                       180
tertcatcat tittggccag cagttgtttg atcaccaanc atcatgccag aatactcagc
                                                                        240
asaccttctt agetettgag aagteaaagt eegggggaat ttatteetgg casttttaat
tqqactcctt atqtqagage ageqqetaec cagetgggqt ggtqgageqa accegteact
                                                                        300
aqtggacatq caqtqgcaqa gctcctggta accacctaqa ggaatacaca ggcacatqtg
                                                                       360
                                                                        42D
tgatgccaag cgtgacacct gtagcactca aatttgtctt gtttttgtct ttcggtgtgt
                                                                        431
agattettag t
      <21D> 361
      <211> 351
      <212> DNA
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                                                                        120
ttgggtcete tgetetette ceragtitee cagecactes assassinaat ategggaggt
                                                                        180
                                                                        Z40
ttgactteet eeggggettt veegaggget teaccatgaa neetgeagee etcagggeta
caatoutggs ttesatgtmL gasacotogo tolictgootg ctggsettet qaggougtes
                                                                        300
objectate office cage betaseaget concatelyt gateetatty t
                                                                        351
      <210> 362
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<211> 463

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        <21.3> Nomo sapien
        <400> 362
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                                                                                    120
ccccqqtcac agamatqacc aggttqggtq ttttcaggtq ccagtqctgg gtcaqcagct cqtamaggmt ttccgcqtcc qtgtcqcagq acagacqtat atacttccct ttcttcccca qtqtctcmm ctgamatacc ccamaqqcqt cqqtmgqma ttccttgqtg tqtttctqt aqttccattt ctcactttgg ttgatctggg tqccttccat gtgctqgctc tgggcatagc
                                                                                    180
                                                                                    240
                                                                                    300
                                                                                    360
cacacttgca cacattetee etgataagea egatggtgtg gacaggaagg aaggatttea
                                                                                    420
ttgagcctgc ttatggaaac tggtattgtt agcttaaata gac
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        <210> 363
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       <221> misc_feature
       <222> (1).7.[653)
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       <400> 363
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tgggggggg gacatectt cottggagat
                                                                                   180
cteacgaeac ttetcaccta tgagttgtae agcagaata cotgnactac agacgagtge
                                                                                   240
CCABCAGCAE coccoggaa gtatgagtto ctotrgggco toogttocta coatgagasc
                                                                                   300
tagcaagatg naagtgitga gantcattgc agaggitcag aaaagagacc entcgtgact
                                                                                   360
ggtetgcaca gttcatggag getgcagatg aggeettaga tgetetggat getgetgcag
                                                                                   42D
ctgaggcoga ageceggget gaagcaagaa eeegeatggg aatteggagat gaggeligtel
                                                                                   480
ntgggccctg gagetgggat gacattgagt ligageloct qacetgggat qaqaaagag
                                                                                   540
attitiggaga tountoptor aganttoont tracettotig ggoragetae caccaganta
                                                                                   600
congetocay attorotoay acctttgoog gloccallat tagtcatagt qqt
                                                                                   653
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       <211> 401
       <212> DNA
       <213> Homo sapien
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                                                                                   120
assaccanggt ggatagatet agasttgtas cattttasqa assaccatage atttgacaga
                                                                                   180
tgagaaagct caattataga tgcaaagtta taactatact actatagtag taaagaaata
                                                                                   240
cattleacae cettestata sattesetat ettogettos ogcaeteest assatutate aegigestag tasseettta tattigetat ogcottoese tagangaett ogsattoese aegiggstoe geggssatut santettell esstageese g
                                                                                   300
                                                                                   360
                                                                                   401
       <210> 365
       <211> 356
       <212> DNA
       <213> Homo sepien
       <400> 365
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                                                                                    60
atqlitong, getagagegt aggastagae cetggegtee actgtgagat gttetteage
                                                                                  120
toccagogca transferr gragraggic attettgggt amagaamiga citccacaaa
                                                                                  180
ctctccatcc cctggctttg gcttcggcct tgogttttcg gcatcatctc cgttaatggt gactgtcacg atgtgtatag tacagtttga caagcctggg tccatacaga ccgctggaga
                                                                                  240
                                                                                  3D0
acattoggca atgtococtt tgtagocagt ttottottog agotocogga gagoag
                                                                                  356
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<210> 366
      <211> 1851
      <212> DNA
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      <400> 366
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                                                                         120
teactteett teageeikig igaciettee teigaigtea getitaagie itgiteigga
                                                                         180
tigcigitti cagasgagai tilliaacaic igittilicii igiagicaga aagtaacigg
                                                                         240
cazattacat gatgatgact agaeacagca tactototgg cogtotttoc agatottgag
                                                                         300
aagatacato aacattttgo toaagtagag ggotgactat acttgotgat coacaacata
                                                                         360
cagcaagtat gagagcagtt cttocatatc tatecagogo atttaaatte gottttttot
                                                                         420
tgattaaaaa tttcaccact tgctgttttt gctcatgtat accaagtagc agtggtgtga
                                                                         480
ggccatgett gttttttgat tegatateag cacegtataa gageagtget tiggecatta
                                                                         540
atttatette attgtagaca geatagtgta gagtggtatt tecatactea tetggaatat
                                                                         50Q
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<212> PRT

<213> Homo sapien

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Gly Lys Val Pro Arg Lys Asp Leu Ile Val Met Leu Arg Asp Thr Asp 135 140 Val Asn Lys Arg Asp Lys Gln Lys Arg Thr Als Leu His Leu Als Ser 155 150 Ala Asn Gly Asn Ser Glu Val Val Lys Leu Val Leu Asp Arg Arg Cys 170 165 175 Gln Leu Asn Val Leu Asp Asn Lys Lys Arg Thr Ala Leu Thr Lys Ala 180 185 190 Val Gln Cys Gln Glu Asp Glu Cys Ala Leu Met Leu Leu Glu His Gly 200 195 Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn Thr Thr Leu His Tyr 215 220 Ala Val Tyr Asn Glu Asp Lys Leu Met Ala Lys Ala Leu Leu Leu Tyr 230 235 Gly Ala Asp Ile Glu Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu 250 Leu Gly Ile His Glu Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys 260 265 Lys Lys Ala Asn Leu Asn Ala Leu Asp Arg Tyr Gly Arg Thr Ala Leu 28D 285 Ile Leu Ala Val Cys Cys Gly Ser Ala Ser Ile Val Ser Pro Leu Leu 295 300 Glu Gln Asn Val Asp Val Ser Ser Gln Asp Leu Clu Arg Arg Pro Glu 310 Sor Met Leu Phe Leu Val Ile Ile Met 325

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<211> 148

<212> FRT

<213> Homo sapien -

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<400> 377

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<210> 378

<21,1> 1719

<21,2> PRT

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					450					455					
465		a va	n o o	T	470		7	σ	A	475					4B0
				4B5					490	1				495	
			500					505					510		Asp
		515					520					525	1		Leu
Asp	Lys 530	Тел	His	Arg	Ala	Ala 535	Тгр	Тгр	Gly	Lys	<b>V</b> al	Pro	Arg	Гуа	Asp
Lev 545	Ile	Val	Met	Leu	Arg 550	Asp	Thr	Asp	۷al	Aan 555		Lys	Asp	Lya	Gln 560
Ъув	Arg	Thr	Ala	Leu 565	His	Leu	Ala	Ser	Ala 570	Asn	Gly	Asn	Ser	Glu 575	Val
Val	Lys	Leu	Leu 580	Leu	Asp	Arg	Arg	Cys 585			Азл	Val	Leu 590	Asp	Азп
Lya	lys	Arg 595	Thr	Ala	Leu	Ile	Lys 600		Val	G].n	Суѕ	61n 605	Glu		Glu
Cys	Ala 610	Leu	Met	Leu	Leu	G10 615	Hj.s	Gly	Tìir	Vab	P.20 620	Asn	rie	6:14	<b>Asp</b>
G1u 625	Туг	Gly	Āsp	Т'nг	75£ 630	Teu	H1.8	Туг	Ale	T).e 635	Tyr	Asn	G).u	aea	Lys 640
نصرا	Met	Λla	Lys	A).a 645	leu	Įъе́п	Leu	Tyr	650	Ala	дая	lle	Glu	Ser 655	Lys
	Lys		660					665		_			670		
	GJV	675					680					685			
	Asp 690					695					700		_	_	_
705	Ala				710					715			_		720
	Gln			725					730					735	
	His		740					745					750	-	
	Leu	755					760					765			_
	Thr 770					775					780				
785	Pro				790					795				_	BOO
	Glu -			B05					B10					B15	_
	Len		820					825					830	_	
	Len	835					B40					845			
	Азр 950					855					860				
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	G1u	915					920					925			
	7hr 930					935					940	-			
945	Arg				950					955					960
WRU	Glu	CTD	IÀI	WT 8	ser	ASP	GIU	GIN	Asn	ABD.	Thi	Glo	Lya	Gln	Phe

Cys Glu Glu Gln Asn Thr Gly Ile Leu His Asp Glu Ile Leu Ile His Glu Glu Lys Gln Ile Glu Val Val Glu Lys Mat Asn Ser Glu Leu Ser Leu Ser Cys Lys Lys Glu Lys Asp Ile Leu His Glu Asn Ser Thr Leu Arg Glu Glu Ile Ala Met Leu Arg Leu Glu Leu Asp Thr Met Lys His Gin Ser Gin Leu Pro Arg Thr His Met Val Val Glu Val Asp Ser Met Pro Ala Ala Scr Ser Val Lya Lya Pro Phe Gly Leu Arg Ser Lya Met 1060 1065 1070 Gly Lys Trp Cys Cys Arg Cys Phe Pro Cys Cys Arg Glu Ser Gly Lys 1080 1085 Ser Amn Val Gly Thr Ser Gly Amp Him Amp Amp Ser Ala Met Lys Thr Leu Arg Ser Lys Met Gly Lys Trp Cys Arg His Cys Phe Pro Cys Cys Arg Gly Ser Gly Lys Ser Asn Val Gly Ala Ssr Gly Asp His Asp Asp Ser Ala Met Lys Thr Leu Arg Asn Lys Met Gly Lys Trp Cys Cys His 1140 1145 1150 Cys Phe Pro Cys Cys Arg Gly Ser Gly Lys Ser Lys Val Gly Ala Trp Gly Asp Tyr Asp Asp Ser Ala Phe Met Glu Pro Arg Tyr His Val Arg Gly Glu Asp Leu Asp Lys Leu His Arg Ala Ala Trp Trp Gly Lys Val 1185 1190 1,795. 1,195 Pro Arg Lys Asp Leu Ile Val Met Leu Arg Asp Thr Asp Val Asm Lys Lys Asp Lys Glm Lys Arg Thr Ala Leu His Leu Ala Ser Ala Asm Gly Asn Ser Glu Val Val Lys Leu Leu Leu Asp Arg Arg Cys Gln Leu Asn Val Leu Asp Asm Lys Lys Arg Thr Ala Leu Tle Lys Ala Val Glm Cys Glm Glu Asp Glu Cys Ala Leu Met Leu Leu Glu His Gly Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn Thr Thr Leu Ris Tyr Ala Ile Tyr Asn Glu Asp Lys Leu Met Ala Lys Ala Leu Leu Teu Tyr Gly Ala Asp 1300 1305 Ile Glu Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu Gly Val His Glu Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys Lys Ala Asn Leo Asn Ala Leo Asp Arg Tyr Gly Arg Thr Ala Leo Ile Leo Ala 135D Val Cys Cys Gly Ser Ala Ser Ile Val Ser Leu Leu Leu Glu Gln Asn lle Asp Val Ser Ser Gln Asp Leu Ser Gly Gln Thr Ala Arg Glu Tyr Ala Val Ser Ser His His His Val Ile Cys Gln Leu Leu Ser Asp Tyr Lys Glu Lys Gln Met Leu Lys Ile Ser Ser Glu Asn 6er Asn Pro Glu Gln Asp Leu Lys Lou The Ser Glu Glu Glu Ser Gln Arg Phe Lys Gly Ser Clu Asn Ser Glo Pro Glo Lys Met Sor Glo Glo Pro Clu Ile Asn Lys Asp Gly Asp Arg Glu Val Glu Glu Glu Met Lys Lys His Glu Ser

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<212> PRT

<213> Homo sapien

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Leu Kis Leu Ala Ser Ala Asn Gly Asn Ser Glu Val Val Lys Leu Leu **JB0** Leu Asp Arg Arg Cys Gln Leu Asn Val Leu Asp Asn Lys Lys Arg Thr Ala Leu Ile Lys Ala Val Gln Cys Gln Glu Asp Glu Cys Ala Leu Met 215-Leu Leu Glu His Gly Thr Asp Pro Asn Ile Pro Asp Glu Tyr Gly Asn Thr Thr Lev Ris Tyr Ala Ile Tyr Asn Glu Asp Lys Leu Met Ala Lys Als Lev Lev Lev Tyr Gly Ala Asp Ile Glu Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu Gly Val His Glu Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys Lys Lys Ala Asn Leu Asn Ala Leu Asp Arg Tyr Gly Arg Thr Ala Leu Ile Leu Ala Val Cys Cys Gly Ser Ala Ser Ile Val Ser Leu Leu Leu Glu Gln Asn Ile Asp Val Ser Ser Gln Asp Leu Ser Gly Gln Thr Ala Arg Glu Tyr Ala Val Ser Ser His His Wal DAE lle Cys Gln Leu Leu Ser Asp Tyr Lys Glu Lys Gln Mot Leu Lys Ile Ber Ser Glu Asn ber Asn Pro Glu Gln Asp Leu Lys Leu Thr Ber Glu Gla Cla Ser Gln Arg Phe Lys Gly Ser Glu Asn Ser Gin Pro Glu Lys Met Ser Gin Glu Pro Glu Ile Asn Lye Asp Gly Asp Arg Glu Val Glu Glu Glu Met Lys Lys Ris Glu Ser Asn Asn Val Gly Leu Leu Glu Asn Leu Thr Asn Gly Val Thr Ala Gly Asn Gly Asp Asn Gly Leu Ile Pro Gln Arg Lys Ser Arg Thr Pro Glu Asn Gln Gln Phe Pro Asp Asn Glu 46D Ser Clu Glu Tyr Ris Arg Ile Cys Glu Leu Val Scr Asp Tyr Lys Glu Lys Cln Mct Pro Lys Tyr Ser Ser Glu Asn Ser Asn Pro Glu Gin Asp Leu Lys Leu Thr Ser Glu Glu Glu Ser Gln Arg Leu Glu Gly Ser Glu SON Asn Gly Gln Pro Glu Leu Glu Asn Phe Met Ala Ile Glu Glu Met Lys Lys His Gly Ser Thr His Val Gly Phe Pro Glu Asn Leu Thr Asn Gly Ala Thr Ala Gly Asn Gly Asp Asp Gly Leu Ile Pro Pro Arg Lys Ser Arg Thr Pro Glu Ser Gln Gln Phe Pro Asp Thr Glu Asn Glu Glu Tyr His Ser Asp Glu Gln Asn Asp Thr Gln Lys Gln Phe Cys Glu Glu Gln Asn Thr Gly Ile Leu His Asp Glu Ile Leu Ile His Glu Glu Lys Gln Ile Glu Val Val Glu Lys Met Asn Ser Glu Leu Ser Leu Ser Cys Lys Lys Glu Lys Asp Ile Leu His Glu Asn Ser Thr Leu Arg Glu Glu Ilo 63D Ala Met Lou Are Leu Glu Teu Asp Thr Met Lys His Gln Ser Gln Leu 645 655

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Ser Glu Glu Tyr His Arg Ile Cys Glu Leu Val Ser Asp Tyr Lys Glu
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 Lys Gln Met Pro Lys Tyr Ser Ser Glu Asn Ser Asn Pro Glu Gln Asp
                    485
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                                                                    495
 Leu Lys Leu Thr Ser Glu Glu Glu Scr Gln Arg Lcu Glu Gly Ser Glu
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                                       505
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  Asn Gly Gln Pro Glu Lys Arg Scr Gln Glu Pro Glu Ile Asn Lys Asp
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 His Gly Ser Thr His Val. Gly Phe Pro Glo Asn Leo Thr Asn Gly Ala
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 Thr Ala Gly Asn Gly Asp Asp Ely Len Ile Pro Pro Arg Lys Ser Arg
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                                                     620
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Lys Lys Asp Arg Ala Trp Leu Arg Cys Pro Glu Ala Val Ala Gly Phe
 Pro Leu Gly Ser Asp Cys Arg Glu Gly Gly Arg Gln Gly Cys Gly Gly 65 75 80
 Ser Asp Asp Glu Asp Asp Leu Gly Val Ala Pro Gly Leu Ala Pro Ala
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toatactosa tigatggita tiegacaett coattictit ciggitatia taascagaaa 120
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aucquetite canatastet caecagogée thecagetés ggegtéctag sagegtetts 180
aspectates consetytet ttgtgtteec teteacooge ctgteeteac agetgagast 240
cccaggaaac ottoagacta cottoctoty cottoageaa ggggcgttgc ccacattetc 300
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 tagocagggo actgotocca acagocagto constaceat catgtnacco agtgnactot 180
 naantingat niccanages staccoaten tagitetget eleccacege niaccagese 240
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antaccanga acconcaton ettaanaach neetgotten toogettmite aatgeeiges 180
tgcagtgcac caccetgtee actaegtgat getgtaggat taaagtetea caqlqqqcgg 240
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catttattaa teatecetge etgiqletat tattatatte atatetetae getggaaact 420
ttotgeotea atglitiacie toccittott titigetegti tgigitgitg asaaassasa 480
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etticcagig atotoctace atgggecocc etectgggat caageeeste ceaggeestg 480
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taagagtggt ggcctatttc agctgctttg acaaaatgac tggctcctga cttaacgttc 180
tatawatgea tytyctyaeg camegtyccc atgytygcyg cymagaeyan amegatytyt 240
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<212> DNA
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gestament assuaged eggscetter amongtogte etgacettte etametetce 240 ttgettgete ecameetggg etgtttmet tgescamee ammagstam tttgetgmeg 300
ttgtggaget teteccetge agagagteee tgateteeca asatttggtt gagatgtaag 360
gntgattttg ctgacaactc cttttctgaa gttttactca tttccaa
                                                                         407
<210> 403
<211> 303
<212> DNA
<213> Homo sapisus
<220>
<221> misc_feature
<222> (1) ... (303)
<223> n = A, T, C or G
<400> 403
cagtatttat agconauty assacctagt agcsggcaaq totossatco aggosccaaa 60
teetaageaa gageeatgge atgytyaaaa tyeaaaaagga yagtetggee aatetacaaa 120
tagagaacea gacchectca gtoatgaace sasaggosga caccescata gatotoatgg 180
gggattggat attgtaatta lagagcagga agatgacagt gatcglcalt tggcacaaca 240
tottaacaac gaccgaaace cattatttac atamacetco attoggtaac catgitgaaa 300
                                                                         303
gga
<210> 404
<211> 225
<212> DNA
<213> Homo sapiens
<400> 404
eagtgtaact titaaaaatt tagtggotti tgaaaattot tagaggaaag taaaggaaaa 60
attiguestig cactcattte cottlecate utgasagite tetetigate etacamacay 120
acattttees etegtglite estagttgtt aagtglistes galgtgttgg geatgtgast 180
chocoogtgm chattants setseaghet chitstitca thost
<210> 405
<211> 334
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1) ... (334)
\langle 223 \rangle n = A,T,C or G
<400> 405
qagetgttat actgtgagtt ctactaggaa atcatcaaat ctgagggttg tctggaggac 60
ttcaatacac etececcat agtgaateag ettecagggg gtecagtece teteettaet 120 teatececat eccatgeeaa aggangaece teceteettg geteacagee ttetetagge 280
ttcccagtgc ctccaggaca sagtoggtta tottttcagc tccatccitg ctgtgagtgt 240
etggtgeggt totgecteea gettetgete agtgettest ggacagtgte cageccatgt 300
                                                                         334
cacteteeac Ectelianne togateeeac coct
```

```
<210> 406
 <211> 216
<21.2> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1) ... (216)
\langle 223 \rangle n = A,T,C or G
<400> 406
tttcatacct estgegggag ttganatnac atnnaaccag gaastgcetg getctcaeng 60
gaaacsaaca cccaatasac toggagtggo agactgacas otgtgagaca tgcacttget 120
achasacaca aattinatgi tgcaccctig titclacacc tgigggitat garaaagaca 180
actgccasag aathttcaag aaggaggact gccant
<210> 407
<211> 413
<212> DNA
<213> Homo sapiens
<400> 407
getgaettge tagtateate tgeatteatt gaageacaag aactteatge ettgaeteat 60
gtasatgcaa taggattaaa aastaeettt gatatcacat ggeeacagac aassaatett 120
gtacaacatt geacecagtg teagatteta caectegeca etcaquadge aagagttaat 180
cocagaggto tatgtoctaa totottatog caaatogato toatgcacot accetcattt 240
ggssaatigt cattigices igigacagii qataciteti cacatitosi eigggcaace 300 igocagacay gagaaagici loocaigita saagecalli attatotigi illicotyica 360
tgggagttoc agammagtt aameragace algggmmagg ttolgtagla aag
<210> 4DB
<211> 1B3
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(183)
<223> n = A,T,C or G
ggsgcingco cicesticol cosinicist gitanosisi itestgicii tignnatica 60
thetteacta gitaateett aaagggetan niasteetta actagienet ceatigigag 120
cattatectt ccaqtattem cettethitt tatttactee tteniggeta cccatqtact 180
ntt
                                                                       183
<210> 409
<211> 250
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> {1}...(250)
<223> n = A, T, C or G
<400> 409
covargeaty atacgetett latticiqta agtectoeta quanteate asatetgacy 60
gtggtttqqq qqacotqaac asacctoolq taattaatca qcfltcaqtt totcccccta 120
glucctuatt cascascala ggsggsLect coecttelll etgetcacqo cettatetag 180
goltoccagi goneceagga cagogtgggo tatatttana gogontoett gotngggggg 240
ggccntatgc
```

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```
<210> 410
<211> 306
<212> DNA
<213> Homo sapiens
<220>
<221> misc_Feature
<222> (1)...(306)
<223> n = A, T, C or G
<400> 410
ggctggtttg rasgastgas atgastgatt ctacagetag gaettaseet tgaaatggas 60
agictigcaa teccattige aggateegte igtgeacatg ectetgiaga gageageatt 120
cccagggacc tiggaascag tiggcactgt asggigctig ciccccaaga cacatectaa 180
saggigitgt aatggigaaa accgctteet tetttatige ecettettat tiatgigaac 240
nactggttgg ctttttttgn atcttttta aactggaaag ttcaattgng zaaatgaata 300
tentge
<210> 411
<211> 261
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> {1}...(261)
<223> n = A,T,C or G
<400> 411
agagatattn cttaggtnaa agtteataga gtteecatga actatatgae tggeezcaca 60
ggalottttg tattlaagga tictgagalt itgettgage aggattagat säggelgtte 120
tttaaatgto tgaaatggaa cagatttoea aaaaaaacco cacaatotag gotgggaaca 180
aggaaggaaa gatgtgaata ggctgatggg caaaaaacca atttacccat cagttccayc 240
cttctctcaa ggngaggcaa a
<210> 412
<211> 241
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(241)
<223> n = A, T, C or G
<400> 412
gttcaatgtt acctgacatt totacaacac cocactcace gatgtaticg tigcccagig 60
ggaacatacc agcotgaatt tygasaaaat aattytyttt ottyccoagg aaatectacy 120
actgactitg atggeteeac aaacataace cagtgtaaaa acagaagatg tggagggag 180
ctgggagatt tcactgggta cattgaattc ccaaactacc cangcaatta cccagccaac 240
<210> 413
<211> 231
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(231)
<223> n = A, T, C or G
```

```
<400> 413
ascicltaca atccaagiga cicatotyty tocttoaatc cittocacty totoatclico 60
otcatocaag titotagtac citolotity tigigaagga taatcanaci gaacaacaaa 120 aagtitacto tooloaitig gaacetaaaa actototict toologgici qagggotoca 180
agaatcoung aatcanttot cagatcatta aggacaccan atcaggaacc t
                                                                       231
<210> 414
<211> 234
<212> DNA
<213> Komo eapiene
<400> 414
actifticate aagcactege cagaageteg aggicacaace caccagacac ticacagoaag 60
qatqqaqctq aaaacataac ccactctgtc ctqqaggcac tqggaaqcct aqagaaggct 120
gtgagccaag gagggagggt cttcctttgg catgggatgg ggatgaagts aggagaggga 180
ctggaccccc tggsagctga ttcactatgg ggggaggtgt attgaagtcc tcca
<210> 415
<211> 217
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> \{1\}...(217)
<223> n = A,T,C or G
<400> 415
gcaleggatt sagactgsgt atottttcta cattotttta sotttotasg gggcacttot 60
caasacacag accaggiago asatotocao tgototaagg ntotoaceao cabittetos 120
cacctagcea tegtagaatt cagtoctact totgeggooa geegaatggt toegaeeaat 180
                                                                       217
antggattat aaaaaateac aattaagaaa aataatc
<210> 416
<211> 213
<212> DNA
<213> Komo sapiens
<220>
<221> misc_feature
<222> (1)...(213)
<223> n - A, T, C or G
<400> 416
atquatatnt aaagganact godtogottt tagaagadat otggnotgot otdtgoatga 60
ggcacagcag tasagetett tgatteecag aateaagaac teteceette agactattae 120
cgaatgcaag gtggttaatt gaaggccact aattgatgct caaatagaag gatattgact 180
                                                                       213
atattggaac agatggagtc tctactacaa aag
<210> 417
<211> 303
<212> DNA
<213> Ното варіеля
<220>
<221> misc feature
<222> (1)...(303)
<223> n = A,T,C or G
<400> 41.7
negtottong goodstongg gangttonen otggagagan gtontacata tgtactgtat 60
```

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gtgggaaagg ctttactctg agttcaaatc ttcaagccca tcagagagtc cacactggag 120
agaageeata caaatgeaat gagtotogga agagetteag gagogattee cattateaag 180
ttoatetagt ggtccacaca ggagagaaac cotataaatg tgagatatgt gggaagggct 240
teanteamag ttegtatett emmateemte ngamgeneem emgtatanan maacetttta 300
agt
<210> 418
<211> 328
<212> DNA
<213> Home sapiens
<220>
<221> misc_feature
<222> (1)...(328)
<223> n - A, T, C or G
<400> 41B
tttttggcgg tggtggggca gggacgggac angagtctca ctctgttgcc caggctggag 60
tgcacaggca tgatctcggc tcactacaac ccctgcctcc catgtccaag cgattcttgt 120
geetcageet teeetgtage tagaattaca ggeacatgee accaeaceea getagttttt 180
gtatttttag tagagacagg gtttcaccat gttggccagg ctggtctcaa actcctnacc 240
tcagnggtca ggctggtctc amactoctga cotcaagtga totgcccaco tcagoctccc 300
aaagtgotan gattacaggo ogtgagoo
<210> 419
<211> 389
<212> DNA
<213> Homo sapiens
<221> misc feature
<222> (1)...(389}
<223> n - A, T, C or G
<400> 419
ectecteasy acqueetyty gleegectee eggeaaceas gasgeetges glgeestaty 60
accectgage catggactgg ageotgaaag geagegtaea eeetgeteet gatettgetg 120 ettgtteet etetgtgget eeatteatag eaeagttgtt geactgagge ttgtgeagge 180
cgagcaagge caagetgget caaagagcaa ecagteaact etgecaeggt gtgecaggea 240
coggitteter agecaccaac etcacteget eccepaaatg gearateagt tettetacce 300
tazaggtagg accasaggge atolgolilit otgaagteel otgetetate agcestoseg 360
tggcagecae tenggetgtg tegacgegg
<2]Q> 420
<211> 408
<212> DNA
<213> Homo sapiens
<400> 420
gttectecta actectgeca gaaacagete tecteaseat gagagetgea eccetectee 60
tggccagggc agcaagcott agcottggct tettgtttct golftttttc tggctagacc 120
gaagtgtact agccaaggag ttgaagtttg tgactttggt gtttcggcat ggagaccgaa 180
greccattga cacettrees actgaecessa taaaggaats etcatggesa caaggatttg 240
gocaactcac coagetggge atggageage attatgaact tggagagtat ataagaaaga 300
gatatagaaa attottgaat gagtootata aacatgaaca ggtttatatt cgaagcacag 360
acgitigaccg gactitigaty aegityctaty acamaccity campeccy
<210> 421
<211> 352
<212> DNA
<213> Homo sapiens
```

```
<220>
<221> misc_feature
<222> (7.)...(352)
<223> n = A, T, C or G
<400> 421
gctceeeaat ctttttactg stnggcatgg ctacacaatc attgactatt acggaggcca 60
yaggagaatg aggcctggcc tgggagccct gtgcctacta naagcacatt agattatcca 120
ttcactgaca gaacaggict tittigggic citcitcicc accaenatat actigoagic 180
etecttettg augsttettt ggengtigte titgtentan eecacaggig taganacang 240 getgenacat ganatitetg titegtagen agigentgie teacaagiig geangieige 300
cactorgagt traitingsty trigititoot transparent typestricet gg
<210> 422
<211> 337
<212> DNA
<213> Homo sapiens
<400> 422
atgccaccat gctggcaatg cagcgggcgg tcgaaggcet gcatatccag cccaagctgg 60
cyatgatoga oggowacogt tgcccgaagt tgccgatgcc agecgaageg gtggtcaagg 120
gegatagean ggtgeeggeg ategeggegg egtemateet ggeennaggte ageegtemte 180
gtyzaatygo agotytogaa ttystotaco oggyttatyg catogycygy catasygyct 240
atocgacaco ggtgcacotg gaagoottgc agoggotggg googaogoog attemocgac 300
gettetteeg eeggtaegge logeelatga aaattat
<210> 423
<211> 310
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> {1}...(310)
<223> n = A, T, C or G
<400> 423
getesaasat ettitlaety statigealy getacaesat ealtwactat tagaggees 60
aggagaetga gycotggcol gggagcoctg tgoctactan aagencatta gattatecat 120 toactgacag aacagglott ttttgggtoc ttotteteda edacgalata ettgengtoc 180
teettettga agattetttg geagttgtet ttgteataac nearaggtgt anaaacaagg 210
gtqcescetq ammittatgt ttcgtmgcaa gtgcatgtct cacagttgtc amgtctgccc 300
teegagttta
<210> 424
<211> 370
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1) ... (370)
\langle 223 \rangle n = A.T.C or G
<40D> 424
gotcammaat otttilactg staggestgg ctacacamte attgactatt agaggeesgs 60
ggagaatgag gootggootg gqagoootgt gootactaga agcacattag attalocat. 120
cactgacaga acaggicitt titigggicci tottetecae cacqatatee tiggaqteet 180
cottottgaa gattrittigg Cagliglicht Egicalaaco cacaggigta gaaacatcot 240
ggttqaatct cutqqaactr cutcattagg Latgaaatag catqatgcat tqrataaagt 300
cacqeeegiq gcaeeqatca ceacgctgcc cegganaeca ttcattgtga teagcaggac 360
tecqtegacq
```

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```
<210> 425
<211> 216
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (1)...(216)
<223> n = A, T, C \text{ or } G
<400> 425
asttgctato ntttattttg coactomaaa taattacoma maaaaamaaa tottamatga 6D
taacaacnea acateaaggn aaananaaca ggaatggntg actntgcata aatnggcoga 120
anattatoca ttaintiaag ggttgactto aggntacago acacagacaa acatgoceag 180
gaggninica ggaccgoicg alginithity aggagg
                                                                           216
<210> 426
<21,1> 596
<212> DNA
<213> Homo sapiens
<400> 426
ottocagtga qqataaccct gttgccccgg gccqagqttc tccatteggc Lclgattget 60
tggcagtcag tgatggaagg gtgttctgat cattccgact gccccaaggg tggctggcca 120
gctctctqtt ttgctgagtt ggcagtagga cctaatttgt taattaagag tagatggtga 180
gctgtccttg tattttgatt aacctaatgg ccttcccagc acgactcgga ttcagetgga 240 gacatcacgg caacttttaa tgaaatgatt tgaagggcca ttaagaggca cttcccgtta 300 ttaggcagtt catctgcact gataacttct tggcagctga gctggtcgga gctgtggccc 360
anacycecae ttggettttg gttttgagat neanetetta atetttigt entgettgag 420
ggtggalggc CttttcegCt Ltauccceet ttgcactgcc ttggaagtgt agccaggaga 480
atacactost atectoging octtagance cacaquant otcattonto tactocotra 540
gtocogotag Leccatocce ggacetteca teggogagta cetaggages egtget
                                                                           596
<210> 427
<211> 107
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (1)...(107)
<223> n = A,T,C or G
<400> 427
qaaqaattea agttaqqttt attcaaaqqq cttacnqaqa atectanace caqqneecaq 60
cccgggagca cccttanaga gctcctgttt gactgcccgg ctcagng
                                                                           107
<210> 428
<211> 38
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> (1)...(3B)
\langle 223 \rangle n = A,T,C or G
<400> 428
gaacttoona anaangactt tattoactat tttacatt
                                                                          38
<210> 429
```

```
<211> 544
<212> DNA
<213> Homo sapiens
<400> 429
ctttgctgga cggaataaaa gtggacgcaa gcatgacctc ctgalgaagg cqctgcattt 60
attgaagage ggetgeagee etgeggttem gattammate egagmentigt alagmeneg 120
atatocacga actotogaag gactitotga titatocaca atcasatoat cggttttcag 180
tttggatggt ggotcatcac otgtagaace tgacttggcc gtggctggaa tccactegtt 240
goottocact tragitaces of actions atoological gittiggetotig the tragitace 300
agatactang occaenttty agatocayes recateteec cenatteete etgtecatee 360
tgatgtgcag ttamamamate tgecellite tgatgleett gatgttetem temmgeocae 120
gagtttagtt caaagcagta ttoagcqatt tcaagagaag ttttttattt ttgctttgac 480
acctoaacaa qttaqaqaqa tatqoatete cagggatttt ttgccaggtg gtaggaqaqa 540
<210> 430
<211> 507
<212> DNA
<2)3> Homo sepiene
<220>
<221> misc_feature
<222> (1) ... (507)
<223> n = A, T, C or G
<400> 430
cttatoncaa tggggctccc aaacttggct gtgcaytyga aactccgggg gaattttgaa 60
quadantgac ancountric caccocques etetgattis altiggeliec agligamana 120
gagcateaat ttaaaaaget qeccagaatg Ethtectgyg cagegttgtg atetttgeen 180
cottogtgac tttatgcaat gcatcatgct atttcatacc taatgaggga gttccaggag 240 attcaccac gatgttlcts cocctgtggg ttatgacaaa gacasctgcc aaagaatntt 300
caaqaaqaag qactgcaagt atatcgtqqt gqagaaqaag gacccaaaaa agacctgttc 360
totoogtgaa togataatet aatgtoette tagtaggead aggotteeda ggecaggeet 420
cattetete tageetetaa tageeaatga ttgtgtagee atgeetatea gtagaaagat 480
(tttgagcaa aaaaasaaaa aaaaaaa
                                                                        507
<210> 431
<211> 392
<212> UNA
<213> Homo sapiens
<220>
<221> misc feature
<222> [1]...(392)
<223> n = A, T, C or G
<400> 431
gammatteag aatggataaa aanaaatgaa gtacaaaata titragatit acatagegat 60
azucaeques goscitolos ggaggacita casaiggasg tacacician ascesicate 120
tatcatggct assignage tragcacage ignatiatit gracatiges ascacciage 180
aagagatggg aaacaaaatc ccaggagtit tgtgtgtgga gtcctgggtt ttccaacaga 240 catcattcce gcattctgeg attagggnga ttggggatca ttctggagtt ggaatgttca 300
acasaagtge tgttgttagg taaaatgtac aacttctgga tctatgcaga cattgaaggt 360
quantgagte tggettttac tetgetgttt et
<210> 432
<211> 3B7
<212> DNA
<213> Homo sapiens
<220>
```

```
<221> misc_feature
<222> (1)...(387)
<223> n = A,T,C or G
<400> 432
ggtat.centa cataateaaa tatagetgta gtacatgttt teattggngt agattaccae 6D
azatgenagg caacatgtgt agatetettg tettattett ttgtetataa taetgtattg 120
ngtaqtecaa geteteggna gtecagocae tgngaaacat getecettta gattaacote 180
gtggacnetn ttgttgnatt gtctgaactg tagngecetg tattttgett etgtetgnga 240
attetqttgc ttetggggca tttccttgng atgcagagga ceaccacaca gatgacagca 300
atotgaattg ntocaatoac agotgogatt aagacatact gaaatogtac aggacogggs 360
                                                                           387
acaacgtata gaacactgga gtoottt
<210> 433
<211> 281
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> [1)...(201)
<223> n = A, T, C \text{ of } G
<400> 433
ttcaactage anagaanact getteagggm gtgtasaatg aaaggettee aegeagttat 60
ctgattasag aacactaaga gagggacaag gctagaagcc gcaggatgto tacactatag 120 caggenetat ttgggttggc tggagaget gtggaaaaca tggagagatt ggcgctggag 180
ategeogtgg ctattectem tigniatiae accagngagg nictotgint geocaetggt 240
tnnaaaaccg ntatacaata atgatagaat aggacacaca t
<210> 434
<211> 484
<212> DNA
<213> Homo sapiens
<400> 434
ttttaaaata agcatttagt geteagtese tactgagtas tetttetete cectectetg 60
watttaattc tttcaacttg caatttgcaa ggattacaca tttcactgtg atgtatattg 120
tyttycases asaassagt ytotttyttt aasattactt yytttytyss tocstottyc 180
tttttcccca ttqgaactag tcattaaccc atctctgaac tggtagaaaa acatctgaag 240 agctagtcta tcagcatctg acaggtgaat tggatggttc tcagaaccat ttcacccaga 300 cagcctgttt ctatcctgtt taataaatta gtttgggttc tctaccatgca taacaaaccc 360
tgctccaatc tgtcacataa aagtctgtga cttgaagttt agtcagcacc cccaccaaac 420
titattitte tatgigtitt tigeaacata tgagigtitt gazaataaag tacccatgic 480
                                                                           484
ttta
<210> 435
<211> 424
<212> DNA
<213> Homo sapiene
<400> 435
quaccquetus gageaggins efficiquet tenacquet cottosagga aqueccatgi 60
gggtagettt castategea ggttettaet eetetgeete tataagetea aacecaecaa 120
cyatcaqqoo egtaaacece eteceteqee gactteqgaa etqqeqaqag tteaqeqeaq 180
zipopoutok ggggaggggg caagatagat gagggggago ggcatggtgc ggggtgaccc 210
ctigogagas ggaaaaaggc cacaagaggg getgecaccg ceactaacgg agatggccct 300
qqtagaqacc titgqggqtc tgqaacctot gqactcccca tgctctaact cccacactot 360
octatoagas acttaasett gaggattitto totgittitto actogoaata aattoagago 420
                                                                           424
888C
<210> 436
```

```
<21.1> 667
 <212> DNA
 <213> Nomo sapiene
 <220>
 <221> misc_feature
 <222> (1)...(667)
 <223> n - A, T, C or G
 <400> 436
 accttgggaa nactctcaca atataaaggg tcgtagactt tactccaaat tccaaaaagg 60
 tectggecat gtaateetga aagttiteee aaggtageta tasaateett ataagggtae 120
 agconcente ggaatteete tgattteaam geotemetet caagttettg memmegaggg 180
 cagttootga aaggoaggta tagcaactga tottoagaaa gaggaactgt gtgcaccggg 240
 atgggotgcc agagtaggat aggattocag atgotgacac ottotggggg aascanggot 300
 gecaggiting testageact catesaugite cygicoscyt etgicetteg satisfasses 360
tgttcatgtt tataggacto attomagaat litetatate tetttettat atactetene 420
 agiteataat getgeteeat geecagetas grastinge casateetts togecatgag 480
 gatteettta tggggteagt gggaaaggtg Leastgggae tteggtetee atgeegaaac 540
accasagica coascitoss effectigget agracacite ggietagees gasaasage 600
agaaacaaga agccaaggol aaggoliget geeetgeeag gaggaggggt geagetetea 660
tattaaa
<210> 437
<211> 693
<212> DNA
<213> Homo sapiena
<400> 437
ctacgtetca acceteatit ttaggtaagg aatettaagt ecamagatat taagtgaete 60
acacagocay glaaggaaag ctggattggc acactaggac totaccatac cggqttttgt 120
tamagetemy gttaggagge tgataagett ggaaggaaet teagacaget titteagate 180
atazagata attettaque catottette Eccapageag acetgaaatg acageacage 240
aggiactect ctaftttcac coctottget telectelet ggeagteaga cotgtgggag 300
goostgggag aaagcagete tetggatgit igtacagate aiggaciati eteigiggae 360
catttotoca opttacccta gqtgt.cacta ttqgggggac agccagcatc tttagctttc 420 atttgagltt ctglctgtct tcagtagagg asacttttgc tcttcacact tcacatctga 480 acacclaact gctgttgctc ctgagqtggt gaaagacaga tatagagctt acagtatta 540
tectatttct aggenetgag ggetgtgggg tacettgtgg tgeeaaaaca gateetgtft 600
tanggacatg tigcticaga gatgiotgia actatologg ggotolotig gotolitaco 660
ctgcatcatg tgctctcttg gctgaaatg acc
<210> 438
<211> 360
<212> DNA
<213> Homo sapiens
<400> 43B
ctgottates casignatgt totoutgego agogttgtgs tottlegcon cttcgtgact 60 ttatgcaatg cancatgcta threalecol satgegggag ttcceggaga ttcsaccagg 120
atgittetac acciquogt tatgacesag acaectgeca aagaatette aagaaggagg 180
actgomagta tatctggtgg ageageaggs cccaeeaaag acctgttctg tragtgaatg 240
gataatetaa tgtgcttela gtaggcacag goctcccagg ccaggcctca ttctcctctg 300
goototaata qtosataatt qtqtageost gootatosgt saasagattt ttqsgcasac 360
<210> 439
<211> 431.
<212> DNA
<23.3> Komo sapiens
<220>
<221> misc feature
```

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<222> (1)...(431)
<223> n = A,T,C or G
<400> 439
gttectnota actectgoca gaaacagete tecteaacat gagagetgea eccetectee 60
tggccagggc agcaagcett ageettgget tettgtttet getttttte tggetagace 120
gaagtgtact agccaaggag tigaagiitg tgaciitggt gittcggcat ggagaccgaa 180
gtoccattga capotitoco actgacerca tasaggasto oteatggoda caaggatéte 240
gocaactcac ccagotgggo atggagcago attatgaact tggagagtat ataagaaaga 300
gatatagaaa attotigaat gagicotata aacatgaaca ggittatait ogaagcacag 360
acqttqaccq gactttgatq agtqctatqa caaacctggc agcccqtcga cgcgccqcg 420
aatttagtag t
                                                                   431
<210> 440
<211> 523
<212> DNA
<213> Homo sapiens
<400> 440
agagatazag ettaggteam ägtteataga gtteecatga actalatgae tegecacaca 60
ggatotttig tattiaagga tiotgagatt tigetteage aggattagat aaggeigtic 120
titaaatgto tqaaatggaa cayatticaa aaaaaaacco cacaatotag ggtgggaaca IBO
aggaaggaaa yetgtgaela ggclgatggg caassaacca atttacccat cagttccagc 240
cttotoloss ggageggen agasaggage tecagtggag acatotggas agittictoc 300
actigeasse tyctoctore tyrittiata trictiquas satatatgag geracagase 360
tassattsa ascetettig tytocettyy tectygaaca titatytice itttaasgaa 420
acensatce ascritaced elegatities total data acatal ages gototical 480
tatetete atageaasta agteatetga tgagaacaag eta
                                                                   523
<210> 441
<211> 430
<212> DNA
<213> Homo sapiens
<400> 441
gttoctocta actoctacca queacagete tectesacut quagagetges eccetectee 60
tggccaggge açeaageett agestigget tettgtttet getttttte tggctagaee 120
gaagtqlact aqccaaggag ttgaagtttg tgactttggt gtttcggcat ggagaccgaa 180
gtoccattga caccttrece actgacceca taaaggaate etcatggoca caaggatttg 240
gccearicer cragitiggs atggegrags attatgaact tigagegtat etaegaæege 300
gatetageee attottgaat gagtootata aacatgaaca ggtttatatt ogaagoacag 360
scyttgaccy gactttgatg agtgetatga caaacctggc agcccgtega cycggccgog 420
eatttagteg
<210> 442
<211> 362
<212> DNA
<213> Homo sapiens
<400> 442
ctaaggaatt agtagtgtto coatoactig littggagigt golatictaa aagattitga 6D
tttoriggaa tgacaaitat attttaactt tygtggggga aagegtteta ggaccacagt 120
etteacttet gatacttyta aattaatell liatigeact tgittigecc attaagetat 180
atgtttagaa atggtcattt tacqqaaaaa ttegaaaaat tctgataata gtgcagaata 240
aaigaatiaa teitttaett aatitetatt geestetsaa teesaataa saattetttt 300
tgattatttt tigitticat tiaccagaat aaaaactaag aattaaaagi tigattacag 360
tc
<210> 443
<211> 624
<212> DNA
<213> Momo sapiens
```

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<220>
   <221> misc_feature
   <222> (1)... (624)
   <223> n = A, T, C or G
   <400> 443
   ttttttttt gcaacacaat atacatcaca gtgaaatgtg taatccttgc aaattgcaag 60
   ttgaaagaat taaattcaga ggagggaga gaaagagtac tcagtaggga ctgagcacta 120
   aatgettatt ttaasagasa tgtaaagage agsaageast teaggetace etgeettttg 180
   tgctggctag tactccggte ggtgtcagea gcacgtggca ttgaacattg caatgtggag 240 cccaaacac agaaaatggg gtgaaattgg ccaactttct attaacttgg cttcctgttt 300 tataaaatat tgtgaataat atcacctact tcaaagggca gttatgaggc ttaaatgaac 360
   teacgectae assacactta ascatagata scataggige sagtactaig tatetygise 420
   eligitaasca toottattat taaagtosso gotaasatga atgtytytyo atatyotast 480
   agtacagaga gagggcactt maaccaacta agggcctgga gggaaggttt cctggmmaga 540 ngatgctlgt gctgggtcca matcttggtc tactatgacc ttggccaaat tatttmmact 600
   tiglicoctat oligotaaaca gato
                                                                                           624
   <210> 444
   <211> 425
   <212> DNA
   <213> Homo sapiens
   <220>
  <221> misc_feature
   <222> (1) ... (425)
   <223> n = A, T, C \text{ or } G
   <400> 444
  geacatealt notettgeat tetttgagaa taagaagate agtagaatagt teagaagtge 60
  gaagettigt ecaggeeigt gigtgaacce aatgittige tiagaaatag aacaagtaag 1.20
  ttcattgcta tagcataaca caaaatttgc ataagtggtg gtcagcaaat cottgaatgc 180
  tgcttaatgt gagaggttgg taawatccit tgtgcaacac totaactccc tgaatgtttt 240
  getgtgetgg gacelgtgea tgccaqacaa agccaaqutg getgaaagag caaccageca 300 cetetgeaat etgccacete etgctggeag galltgttt tgcalectgt gaagagecaa 360
  ggaggcacca gggcataagt gagtagactt atggtcgacg cggccgcgaa tttagtagta 420
  qtaga
  <210> 445
  <211> 414
  <212> DNA
  <213> Homo sapiens
  <220>
  <221> misc_feature
  <222> (1)...(414)
  <223> n - A,T,C or G
. catgitteto nitiiggelt actitggova cotagigtit ciaaatogio tetoeticii 60
 ttetgtttt caaagcaga galqqcaga gtetcaacaa actgtatett caaqtetttg 120 tgaaattett tgcatgtgc agaltatlqq atgtagttt etttaactaq catataaate 180 tgqtgtgtt cagataaatq aacagcaaaa tqtqqtqqa ttaccattq gaacattqtg 240 aatgaaaaat tgtgtetta gatlatglaa caaataacta tteetaacc atgatett 300
  ggatttttat aatoctacto acaaatgact aggottotoo toltotattl tgaagcagtg 360
  tgggtgctqg attgataaas easaassaag tcgacqcqqc cgcqaattta gtag
  <210> 446
  <211> 631
  <212> DNA
  <213> Homo sapiens
```

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<220>
<221> misc_feature
<222> {1}...(631)
\langle 223 \rangle n = A,T,C or G
<4DD> 446
acasattaga anasagtgco agagazosco acatacettg teeggaacat tacastggct 60
totgoatgoa tgggaagtgt gagoattota tozatatgoa ggagocatot tgcaggtgtg 120
atgotggtta tactggaces cactgtgass samaggacta cagtgtteta tacgttgttc 180
coggrected acquitteag tatgeettaa tegeagetet gattegaaca atteagatte 240
ctgtcatctg tgtggtggtc ctctqcatca caagggccaa actttaggta stagcattag 300
actgagattt gtaaacttte caacetteea ggaaatgeee cagaageaac agaatteaca 360
gacagaagua aastacaggg cactacagtt cagacaatac aacaagagcg tocacgaggt 420
taatotaaag ggagoatett toacagtego tegactacog agagotigga clacacaata 480
centattata gacaaaegaa taagacaaga gatotacaca Ligtigoottig cettigiggi 540
eatclaceco salqaesaca tytectaceg ctatatttga ttetytetgg atatatttga 600
aetegtatar attgictiga tgittittict g
<210> 447
<211> 585
<212> DNA
<213> Romo sapiens
<220>
<221> misc_feature
<222> (1)...(585)
\langle 223 \rangle n = A, T, C or G
<400> 447
cottoggass anthtoaces tetasagggt ogtegactit actomasatt ogessasggt 60
cotggccatg testcotges agttttccca aggtagctet assetcctts taagggtgca 120
genietteng quatteetet gattiebaag teteactete aagtteitga aaacgaggge 180
agttoctgaa aggeaggtat ageasetgat etteagasag aggaactgtg tgeaceggga 240
tgggctgcca gagtaggata ggattccaga tgctgacacc ttctggggga aacagggctg 300
ccaggtttgt catagcactc atcaaagtcc ggtcaacgtc tgtgcttcga atataaacct 360
gttcatgttt ataggactca ttcaagaatt ttctatatct ctttcttata tactctccaa 420
gttcataatg ctgctccatg cccagctggg tgagttggcc asatccttgt ggccatgagg 480
attectttat ggggteagtg ggaaaggtgt caatgggaet teggteteea tgeegaaaca 540
ccaaagteac aaactteaac teettggeta gtacaetteg gteta
<210> 448
<211> 93
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> {1}...(93}
<223> n - A,T,C or G
<400> 448
tgclcgtggg tcattctgan nnccqaactg accntgccag ccctgccgan gggccnccat 60
                                                                    93
gget,ccctag tgccctggag agganggggc tag
<210> 449
<211> 706
<212> DNA
<213> Romo sapiens
<220>
<221> misc_feature
```

```
<222> (1)...(706)
  <223> n = A,T,C or G
  <400> 449
  ecaagtteat getntgtget ggacgetgga cagggggeaa aagennttge tegtgggtem 60
  ttotgancae ogaactgace atgecagece tgecgatgqt cetecatgge tecetagtge 120
  cetggagagg aggtgtetag teagagagta gteetggaag gtggcetetg ngaggageea 180
  cyyggacage atectacaga toptcupacy egteccatte gecattered etgegeauct 240
 gitgggmagg gegetcagig egggeetett egetettacg ceagelageg avagggggat 300
 gigetquaq qeqattaagi tgggtaacqc cagggtille ccagtonega egitqiaaaa 360 cqacqquaq tgaattgaat ttagqlgacn ctataqaaga qetalqacqt egcalqeacq 420 cqtacqtaaq ctliqqatqct ctagagcqqc eqectactac tactaaattc qeqqccqcqt 480
 equegliggs techcertes gagagiggag agigaratgi griggarnet giccatgasq 540
 cactouces assetquess cacaacgene cagacactes reschartes quagqetqeq 600
 aecaggitge ecctgggagg tggaggitgc aatgagetga gatcaggeen etgeneecca 660
 gcstggatga cagagtgaas ctccatctta aaaaaaaaaa aaaaaa
                                                                                    706
 <210> 450
 <211> 493
 <212> DNA
 <213> ното варіеля
 <400> 450
 gagacggagt gtcactetgt tgcccagget ggagtgcagc aagacactgt ctaagaaaaa 60
 acaçtittas asgrisasac ascatasas gasatateet atsgriggas tasgagagte 120 asatgagget gagasettis esasgigate tiseaguest gregoesata teaetgestig 180 ageetasgra tasgascase etitiggigas esascotest tigaeagtiga gipaesatte 240
 caagtcaggt agtgaaatgg gtggaaftaa actcaaatta atcutgccag ctgaaacgca 300
 agagacacty teagagagti adaaaqtgag ttetateest gagqtgatte cacagtette 360
 toragtorac acatetytya acteacagac caagttotta saccactytt ceaactetye 420
 Lacacatrag aatracetgg agagettiae aaacteecat tgeegagggt egacgeggee 480
 gcgaatttag tag
 <210> 451
 <211> 501
 <212> DNA
 <213> Homo sapiens
<220>
<221> misc feature
<222> (1)...(501)
\langle 223 \rangle n = A,T,C or G
<400> 451
geogetice cattegreat teaggetgeg caactgiig gaagggegat eggtgeogge 60
otellegeta ttacgecage tggcgasagg gggatgtget gcaaggegat taagttgggt 120
eacgccaggg titteccagt encgaegitg taaaacgaeg gecagigaat igaatitagg 180
Lgacnetata gasgagetat gacgtegeat geacgegtae gtaagettgg atcetetaga 240
gcggccgcct actactacta aattcgcggc cgcgtcgacg tgggatccnc actgagagag 300 tggagagtga catgtgctgg acnetgteca tgaagcactg agcagaagct ggaggcacaa 360
egenecagae acteacaget acteaggagg etgagaacag yttgaacetg ggaggtggag 420 gttgcaatga getgagatea ggeenetgen ecceageatg gatgacagag tgaaacteca 480
tottaaasaa aasaasaasaa a
                                                                                  501
<210> 452
<211> 51
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<222> [1]...(51)
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<223> n = A, T, C or G
<400> 452
                                                                         51
agacggttte accuttacaa encettttag gatggguntt ggggagceag c
<210> 453
<211> 317
<212> DNA
<21.3> Nome sapiens
<220>
<221> misc_feature
<222> (1)...(317)
<223> n = A, T, C or G
<400> 453
tacatettge tittecces tiggaactag teattaacce afetetgaae tggtagaaaa 60
acatetgaag agetagteta teageatetg geaagtgaat tggatggtte teagaaceat 120 tteacceana cageetgttt etateetgtt taataaatta gtttgggtte tetacatgea 180
taacaaacco tgctccaatc tgtcacataa aagtctgtga cttgaagttt antcagcacc 240
cocaccasac titatttttc tatgtgtttt ttgcazcata tgagtgtttt gaaaataagg 300
tacccatgtc tttatta
<210> 454
<211> 231
<212> DNA
<213> Homo sapions
<400> 454
tregaggtae satesactet esgagtgtag ttteetteta tagatgagte ageattaata 60
taagccacge cacgetettg aaggagtett gaatteteet etgeteacte agtagaseem 120 agaagaccam attettetge atcccagett geaascamaa ttgttettet aggteteeme 180
cottoottt toagtgttoc aaagefooto acaatttoat gaacaacago t
<210> 455
<211> 231
 <212> DNA
 <213> Homo sapiens
 taccaaagag ggcataataa toagtotcac agtagggttc accetcctcc aagtgaasaa 60
 cattetteee aatgegettt cosesegets cacacacasa acaggasaca teccaagttt 120
 gttlcaacgc attqatqact Letecaagge tetteetttg geategacea catteagggg 180
 commonantit cheatagear agetrareat acagggeres titerester a
 <210> 456
 <211> 231
 <212> DNA
 <213> Homo sapiens
 <400> 456
 ttggcaggta cocttacaaa gaagacacca taccttatgc gttattaggt ggaataatca 60
 ttocattoug tattatogtt attattottg gagazaccot gtotgtttac tgtaaccttt 120
 tgcactcasa tteetttate aggaataact acatageese tatttacasa geesttggss 180
 pottettatt tygtgoaget gotagtozgt cootgactqa cattgodaag i
 <210> 457
 <211> 231
 <212> DNA
 <213> Homo sapiene
 <220>
```

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<221> misc_feature
 <222> {1}...(231)
 <223> n - A,T,C or G
 <400> 457
 egaggtacce aggggtetga aaatetetnn tttantagte gatageaaaa ttgtteatea 60
 geatteetta atatgatett getataatta gatttttete cattagagtt catacagttt 120
 tatttgattt tattagcaat ctctttcaga agacccttga gatcattaag ctttqtatcu 180
 agitgictaa atogatgoot catticotot gaggtgiogo iggottitgi g
                                                                    231
 <210> 458
 <211> 231
 <212> DNA
 <213> Homo sapiens
 <400> 458
 aggiciggit coccocacti coactocct ctactototo taggaciggg cigggocaag 60
 aganyagong togitagoga agoogitoog ecoligeagon coaccotota cottocitoa 120
 acaccctase cityggtase ascatteggs ettatestt gggatgagta gaatttecaa 180
 gqtoctggqt tagqcatttt gggqqqccag acccaggag aagaagattc t
 <210> 459
<211> 231
<212> DNA
<213> Homo sapiene
<400> 459
ggtaccgagg ctcgctgaca cagagaaacc ccaacgcgag gaaaggaatg gccagccaca 60
cottogogaa acctgtggtg goodaccagt octaacggga caggacagag agacagagca 120
geoctgoact gitticocto caccacagos atoctatoco toattagente Egigetites 180
actatacaca steacestee castgagaaa caagaaggag caccetecac a
<210> 460
<211> 231
<212> DNA
<213> Romo sapiens
<400> 460
gcaggtataa catgotgcaa caacagatgt gactaggaac ggccggtgac atggggaggg 60
cotateacco tattottggg ggotgottot toacagtgat catgaagoot aguagoaaat 120
occacetoce cacaegoaca eggecageet ggageceaca gaagggteet cetgeaquea 180
giggagetig giccageete cagiccaece ciaccagget taaggataga a
<210> 461
<211> 231
<212> DNA
<213> Homo sapiens
<400> 461
chaggitiga qaaggtetaa iqigcagqqq agccqagaag caggcggcct aggqagggtc 60
acgtgtgete cagaagagtg tgtgcatgec agaggggaaa caggegeetg tgtgteetgg 120
gtggggttca gtgaggagtg ggaaattggt tcagcagaac caagccgttg ggtgaataag 180
agggggattc catggcactg atagagccct atagtttcag agctgggaat t
<210> 462
<211> 231
<212> DNA
<213> Homo sapiens
<400> 462
aggiaccoto attgiagoca igggadaatt gatgitoagi ggggaloagi qaaliaaatg 60
gggtcatgca agtataamaa ttaaamaaaaa magacilcat gcccamtctc atatgmtgtg 120
```

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qaaqaactgt tagagagacc aacagggtag tgggttagag atttccagag tcttacattt 180
                                                                     231
tctagaggag qt#ttt#att tcttctcact catccagtgt tgtatttagg a
<210> 463
<211> 231
<212> DNA
<213> Homo sapiens
<40D> 463
tactocages togitgacaga gegagasest atsacegese escacescae saaaaaaaa 60
actgagtaga caggtgtcct cttggcatgg taagtcttaa gtcccctccc agatctgtga 120
cattigacas gigietitie etciggaect eggigiece aletgagiga gasaaggeas 180
tggggaggtg gatettecag tegaageggt atagaageee gtgtgaaaag e
                                                                     231.
<210> 464
<211> 231
<212> DNA
<213> Homo sapiens
<400> 464
gtactotaag allutatota agttqccttt totgqqtggq aaagtttaac ottaqtgaet 60
aspacates catatgasga stotttasgt togsogtoge ascotosatt ocasacagog 120
octgottcag tgaolytyty colytagted cagetacteg ggagtetyty tgaggecagy 180
ggtgccaqeg caccagctag atgctctgta acttctaggc cccattttcc c
                                                                     231
<210> 465
<211> 231
<212> DNA
<213> Homo sapiens
<400> 465
catgitigtty tagetytygt matgetyget gestetesga esgagitase tiesgeteet 60
gtggcaaatt agcaacaaat totgacatoa tatttatggt ttotgtetot ttgttgatga 120
aggatggcac aatttttgct tgtgttcata atatactcaq attagttcag ctccatcaga 180
taaactggag acatgcagga cattagggta gtgttgtagc tctggtaatg a
<210> 466
<211> 231
<212> DNA
<213> Homo sapiens
<400> 466
caggiacete titecatigg atacigiest ageaageatg eleteogege tittitaat 60 geeliegaa cagaactige cacataceca getalaatag titetaacat tigeceagga 120
congregat casetatigi ggagaatico chagotggag aagtoacaaa gactataggo 180
aataatggag accagtocca caagatgaca accagtogtt gtgtgcggct g
<210> 467
<211> 311
<212> DNA
<213> Homo sapi.ens
<400> 467
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 togtogottt totoottttt catoragact cotcagoagg gagoccagae cagootgoae 120
 totoccttaa cagaagqtot tgagattota agtgggaato atttoagtga otgtoatgtg 180
 geatgagtet etgeevaage legtaatgag actatageaa ggeggetgtg ggaegteagt 240
tgtgacctgc tgggcctccc amtagactas caggcagtgc cagttggacc caagagaaga 300
                                                                      311
ctqcagcaga c
 <210> 468
 <211> 3112
```

<212> DNA

```
<213> Homo sapiens
  <400> 468
  cattototto ogagazazas agagagaga tttotototogc kacageegag ggagaceaga 60
  asgatotges togtsggaag gacotgstos tacagagtit gataggagac aattasagge 120
  togaaggeac togatgootg atgatgaagt agactttesa actggggcac tartgaaacg 180
  auggesteec cagagacaca geagatgagt teggegcaage Lesatascas agtgetess 240
 Cqeqqactlq quattqcat quattqqqc tquatttag cccasttgtt tactagttqe 300 qtquattgtq atquttqq quattqtq cctatqqq cctcagqttc cccatccata 360 santgqqet cacaqtatqa tctataeagt qqqatatqt atquttct tcactqqqtt 420 attqaaqq tqaattqqq tqaattqqta tqatttqatq qqqatqcta qaacaqtcc caqattaqta 480
 cattigging eecigegase iggcataacs comments tataigtong aigtiactat 540 gattaicatt casticate gittigical ggcccastil alcoloact gigcoloac 600
 aaattgaact gttaacaaag gaatctctgg tootgggtaa tggotgagca coactgagca 660
 gattaaataa agaacttgag aagaacaggt ttcattaaac ataaaatcaa tgtagacgca 840
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152

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Glu Ile Ala Ser Lys Phe Ser Glu Arg Leu Gln Asp Phe Asp Lys Ser

Asn Pro Ile Val Leu Arg Met Met Asn Asp Gln Leu Met Phe Leu Glu 665

Arg Ala Phe Ile Asp Pro Leu Gly Leu Pro Asp Arg Pro Phe Tyr Arg

His Val Ile Tyr Ala Pro Ser Ser His Asn Lys Tyr Ala Gly Glu Ser

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Pro Ile Asp Thr Fhe Pro Thr Asp Pro Ile Lys Glu Ser Ser Trp Pro 55

Gln Gly Phe Gly Gln Leu Thr Gln Leu Gly Met Glu Gln His Tyr Glu

Leu Gly Clu Tyr Ile Arg Lys Arg Tyr Arg Lys Phe Leu Asn Glu Scr

Tyr Lys Ris Glu Gln Val Tyr Ile Arg Ser Thr Asp Val Asp Arg Thr

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Vaj Ser lle Trp Asn Pro Ile Leu Leu Trp Gln Pro Ile Pro Val Ris

153

140

135

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154

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375

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465			Asp		470					475					400
Leu	Ile	Cys	Дsn	61y 485	Tyr	rea	Gln	Gly	630 Fen	Val	Ser	Phe	Gly	1ув 495	Ala
Pro	Сув	Gly	61n 500	Val	Gly	Val	Pro	Gly 505	Val	Tyr	Thr	Aen	Lev 510	Cys	Lys
Phe	Thr	Glu 515	Trp	Ile	Glu	ГАВ	Thr 520	Val	Gln	Ala	Ser	Glu 525	Phe	Met	Val
	530		Trp			535			-		540				
Leu 545		Val	. <b>ሕ</b> ቌሰ	leu	Leu 550	<b>ፓ</b> ክ፫	Phe	Gly	leu	Glu 555	Val	Сув	Lev	Ala	Ala 560
			· Tyr	565					570	]				915	
			Thr 580	l				585	,				590		
		59					600	•				003			
	614	)	g Arg			613	•				ņχŲ				
62.	5				630	,				655	,				Cya 640
				645	j				591	)				955	
Le	) Le	) As	p Phe 660		Gly	G):	n Val	66!	3 Ph	• Thr	Pro	Lev	670	Ala	Leu
		67	5				680	J				98.	,		Ser
	69	0				69	5				700	ı			Lev
Pr	o Al	a Il	e As;	p Tr	p Asj	p Th	r Sei	r Al	a Le	u Ale	Pro	y Ty	r Lei	ı Gly	Thr

70	5				71	D				71	.5				7.	20
G1	n Gl	u G3	.ນ Cy	's Le 72	u Phi S	e Gly	/ Lei	u Le	บ "Ih 73	r Le O	u 11	e Ph	e le	ים 13		ys
Va.	l Al	a Al	a ¶h 74	r Lei O	u Lei	ı Va]	Ala	a Gl: 74	ս G1 5	υ Al	a Ala	a Le	บ Gl 75		o Ti	ΊΓ
Gl	u Pr	o Al 75	a G1 5	u Gl	y Leo	ser	760	Pre	o Se	r Le	u Sez	76		s Cy	<b>3</b> C	/\$
Pro	Cy:	в Ar D	g Al	a Arq	J Lau	Ala 775	Phe	Arq	g Ası	o Fe	u 6.13 78(	z Ali	a le	u Le	Ų Pi	°O
Arc 78	g Led	a Bi	5 G]	n Leu	Cys 790	Суз	Arq	Met	Pro	79:	g The	. Let	) Ar	3 Ar	g Le BO	
Ph∢	· Vaj	l Al	a Gl	805	Суз	Ser	Trp	Met	A16	Lei )	ı Met	Thi	: Phe	P Th:		u
Phe	t Ty	^ Th.	F A01	) D Phe	· Val	Gly	Glu	Gly 825	Leu	туз	r Gln	Gly	/ <b>Va</b> ]		Ar	<b>Ģ</b>
Ale	Glu	83!	o Gly	y Thr	Glu	Ala	Arg 810	Arg	Hìs	тух	Asp	G10 845	Gly	/ Val	L Ar	g.
Met	G1y B50	Sei	. Leu	ı Gly	Leu	Phe 855	Leu	Gln	Cys	Ala	11e 860	Sei	Leu	Va.I	. Ph	e
9er 965	Leu	. Val	l Met	Asp	Arg 870	Leu	٧a).	Gln	Агд	Phe 875	Gly	Thr	Yrd	Ala	Va:	
				863					890		Ala			895		
Leu	Ser	Kis	Ser 900	. Val	Ala	Val	Val	Thr 905	Ala	Ser	Ala	Ala	10 910	Thr	Gly	7
		913	)				920				Thr	925				
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243					950					955					960	1
				202					970		Val			975		
			200					787			Gl y		990			
Asp	Vel	Ser 995	Val	Arg	Val	Val :	Val 1 <b>0</b> 00	GJ y	Glu	Pro	Thr	Glu 100		Arg	Yal	
	1010	•				101:	<b>&gt;</b>				]]e ].0.	20				
Phe 1025	Leu	Leu	Ser	Gln	Val 8	Ala i	Pro a	Ser	Leu	Phe 10	Met ( 35	Gly	Ser	lle		1040

Gln Leu Ser Gln Ser val Thr Ala Tyr Met val Ser Ala Ala Gly Leu 1045 1050 1055

Gly Leu Val Ala Ile Tyr Phe Ala Thr Gln Val Val Phe Asp Lya Ser 1060 1065 1070

Asp Leu Ala Lys Tyr Ser Ala 1075

